Author Index to Volume 23

(References with (L) are to Letters to the Editor)

Abe, Hidetaro (see Oshima, Keichi)—1721(L)
Abrahamson, Edwin W. and Henry Linschitz. Reversible flash bleaching of chlorophyll—2198(L)
Acquista, Nicolo (see Mann, D. E.)—2122
—— (see Plyler, Earle K.)—752(L)
Adams, Richard M., Richard B. Bernstein, and Joseph J. Katz. Kinetics of the isotope exchange reaction of fluorine with hydrogen fluoride—1622
Addamiano, Arrigo. On the fluorescence of self-activated zinc sulfide—1541(L); erratum—2469(L)
Agnew, William G. (see Donovan, Russell E.)—1592
Aihara, Eiko. Bending force constant of the carbon tetrafluoride molecule—1563(L)
Akao, Humio and Taizo Sasaki. Dielectric dispersion of rochelle salt in the microwave region—2210
Albrecht, Andreas C. and William T. Simpson. Low resolution electronic spectrum of crystalline *para*-dimethoxybenzene with application to benzene—1480
Alder, Berni J. Mixtures of rigid spherical molecules—263
——, **S. P. Frankel, and V. A. Lewinson.** Radial distribution function calculated by the Monte-Carlo method for a hard sphere fluid—417
—— (see Shoolery, James N.)—805
—— (see Watts, H.)—659
Alexander, Leroy and Stephen R. Darin. X-ray diffraction study of four reinforcing carbon blacks—594(L)
Allen, G. and C. A. McDowell. Depolarization ratios of the Raman bands of thionyl chloride—209(L)
Allen, Harry C., Jr., Eugene D. Tidwell, and Earle K. Plyler. Vibrational energy of deuterium cyanide—1356(L)
Allison, H. W. (see Moore, George E.)—1609
Alpert, Morris (see Nielsen, J. Rud)—324
Altshuller, Aubrey P. Lattice energies of the alkaline earth imides and the heat of formation of NH^{-2}—1561(L)
—— Theoretical evaluation of atomic polarizations of diatomic molecules—256
—— Thermodynamic functions for silane—761(L)
Amat, Gilbert and Mark Goldsmith. Theory of the Taylor-Benedict-Strong effect—1171(L)
Amdur, I. and E. A. Mason. Scattering of high velocity neutral particles. V. Neon-neon—415
—— **and E. A. Mason.** Scattering of high velocity neutral particles. VI. Krypton-krypton—2268
Amme, Robert and Sam Legvold. Energy excitation of vibrations in halo-methane gases—1960(L)
Andersen, F. Allan, Børge Bak, Svend Brodersen, and John Rastrup-Andersen. Infrared absorption spectra of monodeuterated pyridines—1047
Angell, C. L. (see Yates, D. J. C.)—1980(L)
Anno, Tosinobu and Ikuo Matubara. Analysis of the near ultraviolet absorption spectra of *ortho*- and *para*-dichlorobenzene vapors—796
—— (see Sadô, Akira)—1740(L)
Antes, L. L. (see Marburger, R. E.)—2448(L)
Apt, C. M. (see Birdsall, C. M.)—441
Ard, William B., Jr. Paramagnetic resonance of color centers in $NaNO_3$—1967(L)
——, **Howard Shields, and Walter Gordy.** Paramagnetic resonance of x-irradiated teflon effects of absorbed oxygen —1727(L)
Arnold, George W., Jr. Comment on "Color centers in smoky quartz"—590(L)
Aroeste, Henry (see Penner, S. S.)—2244
—— (see Penny, H. C.)—1281
Aston, J. G. and Frank L. Gittler. Barrier hindering internal rotation in methylamine—211(L)
——, **S. V. R. Mastrangelo, and R. J. Tykodi.** Adsorption of helium on titanium dioxide—1633
—— (see Segall, Herbert)—528
—— (see Steele, W. A.)—1547(L)
Atchison, W. F. (see Wall, F. T.)—913, 2314
Atoji, Masao, William N. Lipscomb, and P. J. Wheatley. Molecular structure of diborane tetrachloride, B_2Cl_4—1176(L)
Auer, Peter L. and Clifford S. Gardner. Note on singular integral equations of the Kirkwood-Riseman type—1545 (L)
—— **and Clifford S. Gardner.** Solution of the Kirkwood-Riseman integral equation in the asymptotic limit—1546 (L)

Babbitt, J. D. Note on the fundamental law of diffusion—601(L)
Bäckström, Hans L. J. and Kjell Sandros. Quenching of biacetyl fluorescence in solution—2197(L)
Bair, Edward J. (see Crosby, Glenn A.)—1660
—— (see Ordway, Girard L.)—541
Bak, Børge (see Andersen, F. Allan)—1047
Baker, A. W. and R. C. Lord. Vibrational spectra and structure of cyclopropane and cyclopropane-d_6—1636
Baker, Don A. (see Barker, Roland S.)—1381
Baker, Edward B. Nuclear magnetic resonance spectra of methyl pyridines—1981(L)
—— Nuclear spin-spin coupling in substituted benzenes—984(L)
Baldock, Russell (see Rosenstock, H. M.)—2442(L)
Banerjee, B. K. (see Dasgupta, D. R.)—2189(L), 2190(L)
Barber, S. W. (see Dank, M.)—597(L)

Barker, Roland S., Henry Eyring, Don A. Baker, and Charles J. Thorne. Use of molecular quantum-mechanical approximations exemplified in the energy calculation of the H_3^- system—1381

——, **J. Calvin Giddings, and Henry Eyring.** Energy calculations for the linear H_3^+ ion system—344

——, **Richard L. Snow, and Henry Eyring.** Energy calculations of multiple hydrogen-atom systems by VB and MO methods—1686

Barnes, R. G. and P. J. Bray. Nuclear quadrupole resonances of As^{75}—407(L); erratum—1178(L)

—— **and P. J. Bray.** Nuclear quadrupole resonances of Sb^{121} and Sb^{123}—1177(L)

Bartell, L. S. Effects of anharmonicity of vibration on the diffraction of electrons by free molecules—1219

—— **and L. O. Brockway.** Structures of CF_3Cl and CH_3Cl—1860

——, **L. O. Brockway, and R. H. Schwendeman.** Refined procedure for analysis of electron diffraction data and its application to CCl_4—1854

Basu, Sadhan. Errata: Free electron treatment of the orientation of substituents in aromatic molecules—1964(L)

—— Free-electron treatment of Diels-Alder's reaction—1548(L)

Bauer, Ernest. Method of calculating cross sections for molecular collisions—1087

Baurer, Theodore (see Burtt, Benjamin P.)—466

Baxendael, J. H. and D. Smithies. Radiation chemistry of aqueous benzene solutions—604(L)

Beachell, Harold C., Bernard Katlafsky, and James L. Lauer. Pyramidal $XY(CH_3)_2$ molecular modal classical vibration problem—2171

—— **and Eugene J. Levy.** Near infrared spectrum of liquid diborane—2168

Beattie, J. A. (see Birdsall, C. M.)—441

Becker, J. A. and R. G. Brandes. On the adsorption of oxygen on tungsten as revealed in the field emission electron microscope—1323

Beer, Michael and H. C. Longuet-Higgins. Anomalous light emission of azulene—1390

Beers, Yardley (see Weisbaum, Samuel)—1601

Bender, Paul and James M. Wood, Jr. Raman spectra of thionyl fluoride and sulfuryl fluoride—1316

Benedict, W. S. (see Madden, R. P.)—408(L)

Bennett, Arthur L. and Henry W. Wedaa. Luminous zone in the detonation of equimolar acetylene-oxygen—1359(L)

—— (see Gey, William A.)—1979(L)

Bennett, J. E., D. J. E. Ingram, and J. G. Tapley. Paramagnetic resonance from broken carbon bonds—215(L)

Bennett, L. A. and R. G. Vines. Thermal conductivities of organic vapor mixtures—1587

Benninga, Harm and Robert L. Scott. Internal pressure of carbon tetrachloride between −7° and 70°—1911

Benson, G. C. and D. Patterson. Note on an analytical proof of Wulff's theorem in three dimensions—670

Benson, Sidney W. and Charles S. Copeland. Exact method for the calculation of coexistent densities from Van der Waals' type equations—974(L)

—— **and Charles S. Copeland.** Some anomalies in the data on coexistent densities in the region of the critical temperature—1180(L)

—— **and R. Srinivasan.** Some complexities in the reaction system: $H_2 + I_2 = 2HI$—200

Bent, Henry A. Homogeneity condition in thermodynamics—2199(L)

Berg, W. T. (see Pace, E. L.)—2166

Berger, Abraham W. (see Brown, Callaway)—103, 1340

Bernstein, Richard B. Oxygen-18 isotope effect in the reaction of oxygen with copper—1797

—— **and Milton Tamres.** Concentration dependence of solvent shift in the C—H (and C—D) stretching frequencies of chloroform and pentachloroethane—2201(L)

—— (see Adams, Richard M.)—1622

—— (see Friedman, Henry L.)—109, 1722(L)

—— (see Polo, Santiago R.)—833

—— (see Weissman, Herman B.)—544

Berry, P. J. and Milton Burton. Luminescence quenching by oxygen: cyclohexane-benzene-*p*-terphenyl—1969(L)

Berzins, Talivaldis and Paul Delahay. New method for the kinetic study of fast electrode reactions—972(L)

Bhar, B. N. On proton chemical shift in ammonia—1972(L)

—— **and G. Lindström.** Molecular association and proton resonance in propionic acid—1958(L)

Bierlein, James A. Phenomenological theory of the Soret diffusion—10

Bies, David Alan. Ultrasonic investigation of a chemical kinetics problem: The dissociation of magnesium sulfate—428

Bigeleisen, Jacob. Statistical mechanics of isotopic systems with small quantum corrections. I. General considerations and the rule of the geometric mean—2264

—— **and Eugene C. Kerr.** Vapor pressure of HT—2442(L)

—— **and Max Wolfsberg.** Semiempirical study of the H_2Cl transition complex through the use of hydrogen isotope effects—1535

Bird, R. B. (see Muckenfuss, Charles)—1542(L)

Birdsall, C. M., A. C. Jenkins, F. S. DiPaolo, J. A. Beattie, and C. M. Apt. Compressibilities of ozone, oxygen, and ozone-oxygen mixtures and the thermodynamic quantities for pure ozone—441

—— (see Jenkins, A. C.)—2049

Biswas, A. B. (see Sinha, K. P.)—404(L)

Björnerud, E. K. (see Penner, S. S.)—143

Blackledge, J. (see Hush, N. S.)—514

Blois, Scott. Observation of the semiquinone of benzoquinone—1351(L)

Booth, F. Dielectric constant of polar liquids at high field strengths—453

Boudart, M. J. Heats of adsorption on metal surfaces—753(L)

—— **and J. T. Dubois.** Stabilization of energy-rich molecules. I. Energy transfer with hydrogen—223

—— (see DeVogelaere, R.)—1236

—— (see McKinley, J. D., Jr.)—784

Bowden, S. T. Variation of surface tension and heat of vaporization with temperature—2454(L)

Boyd, D. R. J. Infrared spectrum of trideuterosilane and the structure of the silane molecule—922

Brandes, R. G. (see Becker, J. A.)—1323

Bratož, S. Approximate method of calculating vibrational frequencies of polyatomic molecules—159

Braun, V. (see Kortüm, G.)—1723(L)

Braunstein, Jerry and William T. Simpson. Overlaps of trial functions for the hydrogen molecule. I. Ground-state character of the *1s* A.O. approximations—174

—— **and William T. Simpson.** Overlaps of trial functions for the hydrogen molecule. II. Covalent and ionic character of H_2—176

Bray, P. J. Cl^{35} pure quadrupole resonances in acid chlorides and chlorates—703

—— Cl^{35} pure quadrupole resonances in substituted chlorobenzene—220(L)

—— (see Barnes, R. G.)—407(L); erratum—1178(L)

—— (see Barnes, R. G.)—1177(L)

Breene, R. G., Jr. Normal coordinates of *N*-dimethylaminodiborane—97

Brennan, Harry (see Helmholz, Lindsay)—853

Briggs, Lyman J. Relative diameter of oxygen and hydrogen molecules, using negative pressure as an indicator —261
Brinkman, H. C. Reply to Tietz' Letter: "Approximate analytic solution of the Thomas-Fermi equation for atoms" —1560(L)
Brion, Hélène, R. Lefebvre, and C. M. Moser. Alternative method for calculating SCF orbitals—1972(L)
—— (see Daudel, Raymond)—2080
Britton, Doyle and Norman Davidson. Hydrogen-bromine reaction in a nonsteady state—2461(L)
Brockway, L. O. (see Bartell, L. S.)—1854
—— (see Bartell, L. S.)—1860
Brodersen, Svend (see Andersen, F. Allan)—1047
Broida, Herbert P. and Tucker Carrington. Fluorescence and average lifetime of excited OH($^2\Sigma^+$) in flames—2202(L)
—— **and Henry J. Kostkowski.** Experimental evidence for the existence of abnormal OH rotational "temperatures" in low-pressure flames—754(L)
—— **and J. R. Pellam.** Note on the preparation of solid ozone and atomic oxygen—409(L)
Bromberg, Marvin L. and H. Austin Taylor. Oxidation of methane with nitrogen dioxide—2399
Brooks, Wendell V. F. and Bryce Crawford, Jr. Vibrational intensities. V. BrCl and ICl—363
Brout, Robert (see Buff, Frank P.)—458
Brown, Callaway, Abraham W. Berger, and Charles K. Hersh. Phase diagram of liquid ozone-oxygen system—1340
——, **Charles K. Hersh, and Abraham W. Berger.** Magnetic susceptibility of liquid ozone-oxygen mixtures—103
Brown, Frank (see Farber, Milton)—1556(L)
Brown, William Fuller, Jr. Solid mixture permittivities—1514
Bryce, W. A. and K. U. Ingold. Reaction of methyl radicals with nitric oxide—1968(L)
Bube, Richard H. Photoconductivity and crystal imperfections in cadmium sulfide crystals. Part II. Determination of characteristic photoconductivity quantities—18
—— **and S. Milton Thomsen.** Photoconductivity and crystal imperfections in cadmium sulfide crystals. Part I. Effect of impurities—15
Buckingham, A. D. Intermolecular force field of linear molecules with quadrupole moments—412(L)
—— Quantitative comparison of the approximate dielectric polarization theories with an exact one at low densities—2370
Budó, A. and I. Kovács. On the $^4\pi$ state of the O_2^+ molecule —751(L)
Bueche, F. and W. R. Krigbaum. Use of the lattice model for entropy calculations—1863
Buff, Frank P. Spherical interface. II. Molecular theory—419
—— **and Robert Brout.** Molecular formulation of thermodynamic functions encountered in solution theory—458
Burkhalter, James H. Microwave spectrum of cyclopentanone—1172(L)
Burkhard, Donald G. and John C. Irvin. Solution of the wave equation for internal rotation of two completely asymmetric molecules—1405; erratum—2469(L)
Burns, John F. On the heat of dissociation of N_2—1347(L)
Burrell, Elliot (see Miller, Warren W.)—2457(L)
Burton, Milton and John L. Magee. Successive excitation by low-energy electrons: application to electric discharge in methane—2195(L)
—— **and John L. Magee.** Successive excitation by low-energy electrons: general principle—2194(L)
—— (see Berry, P. J.)—1969(L)
Burtt, Benjamin P. and Theodore Baurer. Effect of variations in source intensity on the alpha-induced decomposition of ammonia—466
Burwasser, Herman and H. Austin Taylor. Photolysis of acetic anhydride—2295
Busala, A. (see Ener, Cavid)—155
—— (see Sette, D.)—787
Busing, William R. Infrared spectra and structure of NaOH and NaOD—933
Button, Peter A. (see Stamm, Robert F.)—2456(L)

Calcote, H. F. (see King, I. R.)—2203(L), 2444(L)
Callear, A. B. (see Cvetanović, R. J.)—1182(L)
Callen, Earl. Configuration interaction applied to the hydrogen molecule—360
Calvin, Melvin (see Seely, Gilbert R.)—1068
—— (see Whitney, R. B.)—1750
Candidus, E. S. and D. Tuomi. Germanium-oxygen system —588(L)
Carlson, T. A. and W. S. Koski. Oxidation states of phosphorus-32 produced by neutron irradiation of potassium chloride—1596
—— **and W. S. Koski.** Reactions of Br^{80}(18min) produced by isomeric transition of Br^{80m} (4.58 hr) with benzene and methylated benzenes—2410
Carman, J. N., Jr. (see Sangster, R. C.)—206(L), 1142
Carpenter, D. R. (see Hawkins, N. J.)—1700, 2422
—— (see Mattraw, H. C.)—985(L)
Carrington, Tucker (see Broida, H. P.)—2202(L)
Casassa, Edward F. Light scattering from very long rodlike particles and an application to polymerized fibrinogen —596(L)
Castle, Barbara J., John M. Dawson, and Laurens Jansen. Effect of orientational forces on second virial coefficients —1733(L)
Catalano, Edward and J. W. Stout. Heat capacity and entropy of FeF_2 and CoF_2 from 11 to 300°K. Thermal anomalies associated with antiferromagnetic ordering—1803
—— **and J. W. Stout.** Heat capacity of NiF_2 from 12 to 300°K. Thermodynamic functions of NiF_2. The thermal anomaly associated with the antiferromagnetic ordering—1284
—— (see Stout, J. W.)—2013
Chang, Pin (see Li, James C. M.)—518
Chen, Tien Chi. Expansion of electronic wave functions of molecules in terms of "united-atom" wave functions—2200(L)
Cheng, Ping-yao. Sedimentation velocity and diffusion of a solvated substance—191
Christian, Russell H., R. E. Duff, and F. L. Yarger. Equation of state of gases by shock wave measurements. II. The dissociation energy of nitrogen—2045
—— **and Frederick L. Yarger.** Equation of state of gases by shock wave measurements. I. Experimental method and the Hugoniot of argon—2042
Chupka, William A. and M. G. Inghram. Water dimer and its relation to mass spectrometric measurement of C_6^+ in carbon vapor—203(L)
—— (see Inghram, Mark G.)—2159
—— (see Porter, Richard F.)—216(L), 1347(L)
Claassen, Howard H. (see Malm, John G.)—2192(L)
—— (see Nielsen, J. Rud)—329
Clark, K. C. (see Kane, Walter R.)—859
Clemmons, Jackson J. (see Keller, Seymour P.)—586(L)
Cleveland, Forrest F. (see Miller, Sidney I.)—44
—— (see Polo, Santiago R.)—833
—— (see Sirkar, S. C.)—1684
—— (see Weissman, Herman B.)—544
Coekelbergs, R., A. Frennet, P. A. Gosselain, and M. J. van der Venne. Heterogeneous exchange between chemisorbed halogen and methyl halide—1731(L)

Coffman, Moody L. Transformation useful in computing vibrational overlap integrals—585(L)
Cohen, Alvin J. Color centers in smoky quartz—589(L)
—— Impurity induced color centers in fused silica—765(L)
Cohen, V. W. (see Gilliam, O. R.)—1540(L)
Cole, Robert H. On the analysis of dielectric relaxation measurements—493
—— (see Dannhauser, Walter)—1762
—— (see Denney, Donald J.)—1767
—— (see Hassion, F. X.)—1756
—— (see Havriliak, S., Jr.)—134, 2455(L)
Collin, J. and L. D'Or. Infrared investigation of the benzene-chlorine molecular complex—397(L)
Collins, F. C. and H. Raffel. Hydrodynamic frictional and diffusion coefficients in idealized liquids. I. The collisional contribution—1454
Collins, R. L. and J. Rud Nielsen. Vibrational spectra, force constants, and calculated thermodynamic properties of methyltrifluorosilane—351
Colpa, J. P. (see Ketelaar, J. A. A.)—413(L)
Cook, Frances H. (see Leidheiser, Henry, Jr.)—595(L)
Cook, Melvin A. Mechanism of detonation—409(L)
Cooke, Claude E., Jr. Study of electrokinetic effects using sinusoidal pressure and voltage—2299
Cooper, C. D. (see Sponer, H.)—646
Copeland, Charles S. (see Benson, Sidney W.)—974(L)
—— (see Benson, Sidney W.)—1180(L)
Cormack, D. V., R. W. Hummel, H. E. Johns, and J. W. T. Spinks. Irradiation of ferrous ammonium sulfate solutions: Energy absorption and ionization calculations for cobalt-60 and betatron radiation—162
Costain, C. C. Microwave spectrum and molecular structure of methylchloroacetylene—2037
Courtney, Welby G. Crystal growth and coercive forces of variously prepared Ni powders—1174(L)
Courtoy, C. P. and G. Herzberg. Effect of Fermi resonance on the centrifugal stretching constants in CO_2—975(L)
Cousins, Lauren R. (see Miller, Foil A.)—2127
Cowan, R. D. (see Fickett, W.)—1349(L)
Crawford, Bryce, Jr. (see Brooks, Wendell V. F.)—363
—— (see Hisatsune, I. C.)—2467(L)
—— (see Williams, Dale G.)—179
Crosby, Glenn A., Edward J. Bair, and Paul C. Cross. Analysis of the 6140 cm^{-1} band of HDS—1660
Cross, Paul C. (see Crosby, Glenn A.)—1660
—— (see Ordway, Girard L.)—541
Crozier, W. D. (see Gourley, Mary Foulks)—1298
Curtiss, C. F. (see Muckenfuss, Charles)—1542(L)
Cutler, W. G., W. Webb, and R. W. Schiessler. Examination of the expression, $T(dP/dT)_v + B = f(v)$, for a number of high purity liquid hydrocarbons—2466(L)
Cvetanović, R. J. Mercury photosensitized decomposition of nitrous oxide—1203
—— Reaction of oxygen atoms with ethylene—1375
—— Relative efficiencies of quenching of mercury resonance radiation and their temperature independence. Mechanism of mercury photosensitized decomposition of saturated hydrocarbons—1208
—— **and A. B. Callear.** Mercury sensitized decomposition of ethylene—1182(L)
Cyphers, Joseph A. (see Friedman, Raymond)—1875

Daasch, L. W. (see Kagarise, R. E.)—113, 130
Dacey, J. R. and D. M. Young. Photolysis of hexafluoroazomethane—1302
Dailey, B. P. and C. H. Townes. Ionic character of diatomic molecules—118
—— (see Friend, James P.)—1557(L)
—— (see Kraitchman, J.)—184
—— (see Lerner, R. G.)—210(L)
—— (see Solimene, N.)—124
—— (see Wagner, R. S.)—599(L), 1355(L)
Dandliker, W. B. (see Kraut, J.)—1544(L)
Danforth, W. E. Polarization in thorium oxide crystals—591(L)
Daniels, Farrington (see Zeller, Edward J.)—2187(L)
Dank, M. and S. W. Barber. Low-temperature specific heats of vitreous and crystalline silica—597(L)
Dannhauser, Walter and Robert H. Cole. Dielectric properties of liquid butyl alcohols—1762
Darbee, Leonard R. Simplified calculation of isotopic exchange half-time—1349(L)
Darin, Stephen R. (see Alexander, Leroy)—594(L)
Darnell, A. J. (see Farber, Milton)—1460, 1556(L)
Darwent, B. deB. (see Sehon, A. H.)—822
Dasgupta, D. R. and B. K. Banerjee. Study of phase transformation of orthoboric acid by x-ray diffraction method—2190(L)
—— **and B. K. Banerjee.** X-ray crystallographic study of phase transformation of borax during thermal treatments—2189(L)
Datz, Sheldon (see Taylor, Ellison H.)—1711
Daudel, Raymond, Hélène Brion, and Simone Odiot. Localizability of electrons in atoms and molecules—application to the study of the notion of shell and of the nature of chemical bonds—2080
Davidson, Norman (see Britton, Doyle)—2461(L)
—— (see Gilkerson, W. R.)—687
Davies, Mansel and A. H. Price. Dielectric absorption of triethylamine solutions—2204(L)
Dawson, John M. (see Castle, Barbara J.)—1733(L)
Dawson, Laurens M. (see Jansen, John)—482; erratum—1729(L)
Dawson, Lyle R. (see Sears, Paul G.)—1274
Dean, C. Chlorine nuclear quadrupole resonances in solid solutions—1734(L)
Decius, J. C. Coupling of the out-of-plane bending mode in nitrates and carbonates of the aragonite structure—1290
Dekker, Albert O. (see Schultz, Robert D.)—2133
Delahay, Paul (see Berzins, Talivaldis)—972(L)
—— (see Rüetschi, Paul)—195, 556, 697, 1167(L)
DeMarcus, W. C. Zero-point energy of monatomic crystals—602(L)
—— **and E. H. Hopper.** Knudsen flow through a circular capillary—1344(L)
Denney, Donald J. and Robert H. Cole. Dielectric properties of methanol and methanol-1-propanol solutions—1767
Dennis, Kent S. (see Pace, E. L.)—2166
DePrima, C. R. and S. S. Penner. Invariance of integrated transmittance and total fractional transmission with experimental slit function—757(L)
Derrick, M. (see Jeffries, T. O.)—1730(L)
Deshmukh, M. B. Joshi effect in relation to intermittent pulses—593(L)
DeSorbo, Warren. Specific heat of graphite at very low temperatures—1970(L)
De Vogelaere, R. and M. Boudart. Contribution to the theory of fast reaction rates—1236
Dickey, Fred P. and James M. Hoffman. Vibration-rotation band ν_2 of heavy water vapor—1718
—— (see France, W. L.)—471
Dillon, J. A., Jr., W. F. Sheridan, H. D. Edwards, and S. N. Ghosh. Charge transfer reactions in monatomic and diatomic gases—776
DiPaolo, F. S. (see Birdsall, C. M.)—441
—— (see Jenkins, A. C.)—2049
Dixon, R. N. and N. Sheppard. Vibration-rotation spectrum of silyl iodide—215(L)

Dondes, S. (see Harteck, P.)—902
Donovan, Russell E. and William G. Agnew. Infrared spectrum of two-stage cool flame of diethyl ether—1592
D'Or, L. (see Collin, J.)—397(L)
Dougherty, E. L., Jr., and H. G. Drickamer. Theory of thermal diffusion in liquids—295
Douglas, David L. Tritium-carbon monoxide reaction—1558(L)
Douglas, John E., B. S. Rabinovitch, and F. S. Looney. Kinetics of the thermal *cis-trans* isomerization of dideuteroethylene—315
Douslin, D. R. and Guy Waddington. Intermolecular potential energy of dipolar gases from heat capacity data—2453(L)
Dowling, Jerome M. Substituted methanes. XXI. Calculated and observed wave numbers, and calculated thermodynamic properties, for bromodeuteromethane and bromodideuteromethane—700
Dows, David A. and George C. Pimentel. Infrared spectra of gaseous and solid hydrazoic acid and deutero-hydrazoic acid: the thermodynamic properties of HN_3—1258
——, **George C. Pimentel, and Eric Whittle.** Infrared spectra of intermediate species in the formation of ammonium azide from hydrazoic acid—1606
——, **Eric Whittle, and George C. Pimentel.** Infrared emission and absorption in an ammonia-oxygen diffusion flame—499
——, **Eric Whittle, and George C. Pimentel.** Infrared spectrum of solid ammonium azide: a vibrational assignment—1475
Drickamer, H. G. (see Dougherty, E. L., Jr.)—295
—— (see Emery, A. H., Jr.)—2252
—— (see Sinfelt, J. H.)—1095
Dubois, J. T. (see Boudart, M.)—223
Duchesne, Jules and André Monfils. Radio-frequency vibrational absorption in piezoelectric crystals—762(L)
——, **André Monfils, and Julien Garsou.** Nuclear quadrupole resonance of γ-irradiated *para*-dichlorobenzene—1969(L)
Dudley, R. S., R. Elliott, W. H. McFadden, and L. W. Shemilt. Strain potentials—585(L)
Duff, Russell E. and Edwin Houston. Measurement of the Chapman-Jouguet pressure and reaction zone length in a detonating high explosive—1268
—— (see Christian, R. H.)—2045
Duffey, George H. Detonation waves and the principle of minimum entropy production—401(L)
Duncan, Norman E. and George J. Janz. Molecular structure and vibrational spectra of ethyl cyanide—434
Dunitz, J. D. and L. E. Orgel. Electronic structure of metal bis-cyclopentadienyls—954

Edwards, Howard D. (see Dillon, J. A., Jr.)—776
—— (see Venkateswarlu, Putcha)—1195
Eggers, D. F., Jr. Anomalous infrared intensity in ethylene—221(L)
—— (see Hisatsune, I. C.)—487
Ehrlich, Gert. State of nitrogen adsorbed on tungsten—1543(L)
Elliott, R. (see Dudley, R. S.)—585(L)
Ellison, Frank O. Molecular calculations. II. Methods of approximation of molecular integrals—2358
—— **and Harrison Shull.** Molecular calculations. I. LCAO MO self-consistent field treatment of the ground state of H_2O—2348
El-Sabban, M. Z. (see Nielsen, J. Rud)—324
Emery, A. H., Jr., and H. G. Drickamer. Thermal diffusion in polymer solutions—2252
Ener, Cavid, A. Busala, and J. C. Hubbard. Ultrasonic dispersion in methyl alcohol vapor—155
Englert-Chwoles, A. On the entropy of mixing of liquid solutions—1168(L)
Epstein, Leo F. (see Lukesh, Joseph S.)—1923
Ernstein, N. E. (see Mickelsen, W. R.)—1558(L)
Evans, Dennis F. Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. I. Iodine—1424
—— Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. II. Bromine—1426
—— Perfluoroheptane as a spectroscopic solvent—1429
Evett, Arthur A. Ground state of the helium hydride ion—1169(L)
Eyring, Henry (see Barker, Roland S.)—344, 1381, 1686
—— (see Rosenstock, H. M.)—2200(L)

Fain, Janice (see Lefkovits, H. C.)—1690
Fajans, J. (see Neumark, G.)—1553(L)
Farber, Milton and A. J. Darnell. Heat of formation and entropy of titanium tetrachloride from an investigation of the equilibrium: $TiO_2(s) + 4HCl(g) = TiCl_4(g) + 2H_2O(g)$—1460
——, **A. J. Darnell, and Frank Brown.** X-ray diffraction patterns of $TiCl_2$ and $TiCl_3$—1556(L)
Farmer, J. B., F. P. Lossing, D. G. H. Marsden, and E. W. R. Steacie. Mass spectrometric detection of radicals in the mercury photosensitized decomposition of acetone—1169(L)
——, **D. G. H. Marsden, and F. P. Lossing.** Thermal stability of *ortho-*, *para-*, and *meta*-xylyl radicals and the formation of quinodimethanes—403(L)
Ferguson, R. E. On the origin of the electronically excited C_2* radical in hydrocarbon flames—2085
Ferigle, Salvador M. (see Malhiot, Robert J.)—30
—— (see Weber, Alfons)—579, 2207
Fernandez, Jose, Rollie J. Myers, and William D. Gwinn. Microwave spectrum and planarity of the ring of trimethylene oxide—758(L)
Ferriso, C. C. and D. F. Hornig. Infrared spectra of oxonium halides and the structure of the oxonium ion—1464
Fickett, W. and R. D. Cowan. Values of thermodynamic functions to 12 000°K for several substances—1349(L)
Fine, J., J. H. Goldstein, and J. W. Simmons. Microwave spectrum of *s-trans* acrolein—601(L)
Fiora, Verna C. (see Turner, T. E.)—1966(L)
Fischer, Ernst, Max Frankel, and Reuven Wolovsky. Wavelength dependence of photoisomerization equilibria in azocompounds—1367(L)
—— (see Hirshberg, Yehuda)—1723(L)
Fischer-Hjalmars, Inga. Theoretical study of the ozone molecule—411(L)
Fitzgerald, Warren E. (see Janz, George J.)—1973(L)
Fixman, Marshall. Excluded volume in polymer chains—1656
—— Molecular theory of light scattering—2074
Flook, W. M., Jr., and D. F. Hornig. Experimental determination of the thickness of weak shock fronts in liquids—816
Foner, S. N. and R. L. Hudson. Ionization potential of the free HO_2 radical and the $H-O_2$ bond dissociation energy—1364(L)
—— **and R. L. Hudson.** OH, HO_2, and H_2O_2 production in the reaction of atomic hydrogen with molecular oxygen—1974(L)
Forneris, Roberto (see Stammreich, H.)—972(L)
Fox, David and Otto Schnepp. Theory of the lower excited electronic states of the benzene crystal—767
Fraenkel, George K. (see Venkataraman, Balu)—588(L)
France, W. L. and F. P. Dickey. Fine structure of the 2.7 micron carbon dioxide rotation-vibration band—471

Frank, Henry S. Thermodynamics of a fluid substance in the electrostatic field—2023
Frankel, Max (see Fischer, Ernst)—1367(L)
Frankel, S. P. (see Alder, B. J.)—417
Frankl, D. R. (see Neumark, G.)—1553(L)
Frech, Maurice F. (see Wise, Henry)—1374(L)
Freed, Simon (see Sayre, Edward V.)—2060, 2066
Freeman, Robert D. (see Searcy, Alan W.)—88
Frenkiel, F. N. Ozone theory in the troposphere—2440(L)
Frennet, A. (see Coekelbergs, R.)—1731(L)
Friedman, A. S. (see Haar, Lester)—869
Friedman, Henry L., Richard B. Bernstein, and Harry E. Gunning. Comments on the C^{13} isotope effect in the thermodecomposition of ethyl bromide—1722(L)
——, **Richard B. Bernstein, and Harry E. Gunning.** C^{13} isotope effect in the thermodecomposition of ethyl bromide—109
Friedman, Lewis. Mass spectrum of lithium iodide—477
Friedman, Raymond and Joseph A. Cyphers. Flame structure studies. III. Gas sampling in a low-pressure propane-air flame—1875
Friend, James P., Robert F. Schneider, and B. P. Dailey. Microwave spectrum of cyclopropyl chloride—1557(L)
—— (see Lerner, R. G.)—210(L)
Fristrom, Robert M. Note on the validity of one-dimensional flame front models—1360(L)
Frondel, Clifford and C. S. Hurlbut, Jr. Determination of the atomic weight of silicon by physical measurements on quartz—1215
Frost, Arthur A. Free electron theory, finite differences, and LCAO molecular orbitals—310
—— Note on the branching condition in the one-dimensional free electron gas model—985(L)
Fueki, Kenji (see Yasumori, Iwao)—398(L)
Fujita, Hiroshi. Counter-ion distribution in dilute solutions of rigid spherical macromolecular ions in the absence of added salt—837
Fujita, Junnosuke, Akitsugu Nakahara, and Ryutaro Tsuchida. Intramolecular O—H—O hydrogen bonds in bis-(dimethylglyoximato)-cobalt (III)-complexes—1541(L)
—— (see Kobayashi, Masahisa)—1354(L)
Fuke, T. (see Kôi, Y.)—1346(L)
Furst, Milton and Hartmut Kallmann. Fluorescent behavior of solutions containing more than one solvent—607
Furuichi, Jiro (see Sugai, Shintaro)—1181(L)

Gaines, George L., Jr., and Henry C. Thomas. Adsorption studies on clay minerals. V. Montmorillonite-cesium-strontium at several temperatures—2322
Gardner, Clifford S. (see Auer, Peter L.)—1545(L), 1546(L)
Garsou, Julien (see Duchesne, Jules)—1969(L)
Garvin, David (see McKinley, J. D., Jr.)—784
Gaur, H. C. (see Ramaiah, N. A.)—212(L)
Gayhart, E. L. (see Olsen, H. L.)—402(L)
Geller, S. and A. L. Schawlow. Crystal structure and quadrupole coupling of cyanogen bromide, BrCN—779
Gerhauser, J. M. and F. A. Matsen. Application to perturbation theory to the helium atom—1359(L)
Gerlich, D. (see Many, A.)—1733(L)
Gerson, Robert and J. H. Rohrbaugh. Experiments on the carnauba wax electret—2381
Gey, William A. and Arthur L. Bennett. Sensitivity of explosives to pure shocks—1979(L)
Ghosh, S. N. (see Dillon, J. A., Jr.)—776
Giacometti, Giovanni. Hybrid π orbitals and partial double bond character in covalent complexes—2068
—— Note on the dodecahedral σ hybrids—977(L)
Gibbs, J. H. (see McDonald, R. S.)—1170(L)
Gibson, George E. (see Gilmore, Earl H.)—399(L)
Giddings, J. Calvin (see Barker, Roland S.)—344
Gilkerson, W. R. and Norman Davidson. On the structure of a detonation front—687
Gilliam, O. R., Robert I. Walter, and V. W. Cohen. Nuclear hyperfine structure in the paramagnetic resonance absorption of triarylaminium perchlorates—1540(L)
Gilmore, Earl H., George E. Gibson, and Donald S. McClure. Errata: Absolute quantum efficiencies of luminescence of organic molecules in solid solution—399(L)
Gilvarry, J. J. Grüneisen's constant for some metals—1925
Ginell, Robert. Association and the equation of state—2395
—— **and Joel Shurgan.** Linear association in nonaqueous solutions—964
—— **and Joel Shurgan.** Linear association in solution. II. Analytical solution—1356(L)
Girgis, R. K. (see Yousef, Y. L.)—959
Girifalco, L. A. Potential energy of a molecule in a liquid—1728(L)
—— Temperature dependence of viscosity and its relation to vapor pressure for associated liquids—2446(L)
Gittler, Frank L. (see Aston, J. G.)—211(L)
Glazer, Herbert and Howard Reiss. Calculation of the dipole moment of the carbon-hydrogen bond in methane by the Thomas-Fermi method—937
Goff, John A. (see Pfefferle, William C., Jr.)—509
Goldsmith, Mark (see Amat, Gilbert)—1171(L)
Goldstein, J. H. (see Fine, J.)—601(L)
—— (see Howe, John A.)—1223
—— (see Kwak, Nowhan)—2450(L)
Gollob, Fred (see Senett, William P.)—1679
Gomer, Robert and Lothar Meyer. Energy exchange between cold gas molecules and a hot graphite surface—1370(L)
—— **and R. Wortman.** Mobility of hydrogen on tungsten—1741(L)
Goodman, Lionel and Harrison Shull. Molecular calculations. III. A modification of the naive semiempirical MO method—33
Gopal, Ram and O. K. Rice. Shape of the coexistence curve in the perfluoromethylcyclohexane-carbon tetrachloride system—2428
Gordon, Alvin S. (see Knipe, R. H.)—2097
Gordon, Sheffield (see McDonell, William R.)—208(L)
—— (see Maybury, Robert H.)—1277
Gordy, Walter (see Ard, William B.)—1727(L)
—— (see Venkateswarlu, Putcha)—1195, 1200
Gosselain, P. A. (see Coekelbergs, R.)—1731(L)
Gourley, Mary Foulks and W. D. Crozier. Evaporation of submicroscopic ice crystals—1298
Grahame, David C. "Hump" in the capacity of the electrical double layer—1725(L)
—— On the specific adsorption of ions in the electrical double layer—1166(L)
Greene, E. F. (see Toennies, J. P.)—1366(L)
Greenwood, H. H. Some comments on the frontier orbital theory of the reactions of conjugated molecules—756(L)
Griffel, Maurice (see Skochdopole, R. E.)—2258
Griffing, Virginia. Studies of the interaction between stable molecules and atoms. I. A molecular orbital theory of the activation energy between molecules and atoms—1015
—— **and Andrej Maček.** Studies of the interaction between stable molecules and atoms. III. A molecular orbital treatment of the quadratic form of H_4—1029
—— **and Daniele Sette.** Luminescence produced as a result of intense ultrasonic waves—503
—— **and Joseph T. Vanderslice.** Studies of the interaction between stable molecules and atoms. IV. The energy of the linear H_4 complex—1035

—— **and Joseph T. Vanderslice.** Studies of the interaction between stable molecules and atoms. V. Molecular orbital approach to the H + H_2 reaction—1039
—— **and J. F. Wehner.** Studies of the interaction between stable molecules and atoms. II. Interaction between two He atoms—1024
Grimes, D. M., L. Thomassen, C. F. Jefferson, and N. C. Kothary. Effect of V_2O_5 on nickel-zinc ferrite formation —2205(L)
Gross, E. P. Inertial effects and dielectric relaxation—1415
Grossweiner, L. I. and M. S. Matheson. Short-lived species from the photolysis of aqueous alkali halide and halogen solutions—2443(L)
Groth, W. E. and O. Oldenberg. Dissociation by impacts of the second kind—729
Gruen, Dieter M. Magnetic properties of uranium hydride —1708
Gullikson, C. W. (see Nielsen, J. Rud)—1994
Gunning, Harry E. (see Friedman, Henry L.)—109, 1722(L)
—— (see McDonald, C. C.)—532
Gutowsky, H. S., L. H. Meyer, and D. W. McCall. Electron exchange coupling of nuclei in aromatic systems—982(L)
—— (see Powles, J. G.)—1692
Gwinn, William D. (see Fernandez, Jose)—758(L)

Haar, Lester and A. S. Friedman. High-speed machine computation of ideal gas thermodynamic functions. II. The diatomic free radicals of the isotopic hydrides of oxygen and sulfur—869
Hacskaylo, M. and P. Schwed. Further observations on color center precursors—1362(L)
Hagstrum, Homer D. Reinterpretation of electron impact experiments in CO, N_2, NO, and O_2—1178(L)
Halford, Ralph S. (see Zwerdling, Solomon)—2215, 2221
Halpern, J. and E. Peters. Mechanism of the catalytic activation of molecular hydrogen by metal ions—605(L)
Hamill, William H. (see Zubler, Edward G.)—1263
Hammerle, W. G. and J. G. Kirkwood. Anomalous dielectric dispersion in polar macromolecular solutions—1743
Handler, George S. Interaction of an electron with a physical dipole—1977(L)
—— (see Nachtrieb, Norman H.)—1187, 1569
Hannan, Roy B., Jr. (see Miller, Foil A.)—2127
Hanson, Howard G. Quenching of NaI fluorescence by H_2, HCl, CO_2, and H_2O—1391
Hanst, Phillip L. (see McClure, Donald S.)—1772
Harnik, E. (see Many, A.)—1733(L)
Harris, Frank E. Contributions of fluctuations and anisotropy to dielectric polarization in polar substances—1663
—— Note on imperfect gas theory—1965(L)
—— Ring formation and molecular weight distributions in branched-chain polymers. I—1518
Hart, Robert W. (see Massey, J. T.)—942
Harteck, P. and S. Dondes. Decomposition of carbon dioxide by ionizing radiation. Part I—902
Harter, H. Leon, Paul R. Rider, and Pierce M. Williamson. New model for a two-dimensional standard state—1966(L)
Haskins, J. R., George Heller, and Eugene Miller. Equivalent circuit for a coil cell used in rf titrimetry—755(L)
Hassion, F. X. and R. H. Cole. Dielectric properties of liquid ethanol and 2-propanol—1756
Haszeldine, R. N. and J. Jander. Further remarks on the spectra of nitrites and nitrosamines—979(L)
Haugh, Eugene F. and Joseph O. Hirschfelder. Pi-electron forces between conjugated double bond molecules—1778
Hause, C. D. (see Nichols, Nathan L.)—57
Havriliak, S., Jr., and R. H. Cole. On dielectric properties of solid hydrogen and deuterium halides—2455(L)
——, **R. W. Swenson, and R. H. Cole.** Dielectric constants of liquid and solid hydrogen sulfide—134
Hawkins, N. J. and D. R. Carpenter. Force constants, infrared spectrum, and thermodynamic properties of $TiCl_4$ —1700
——, **H. C. Mattraw, and W. W. Sabol.** Infrared spectrum of plutonium hexafluoride—2191(L)
——, **H. C. Mattraw, W. W. Sabol, and D. R. Carpenter.** Spectroscopy of gaseous carbonyls. I. Infrared spectra and thermodynamic properties of chromium and molybdenum hexacarbonyls—2422
—— (see Mattraw, H. C.)—985(L)
Heller, George (see Haskins, J. R.)—755(L)
Heller, Wilfried. Determination of particle size and refractive index near the turbidity maximum in monodisperse suspensions of spherical particles—342
Helmholz, Lindsay, Harry Brennan, and Max Wolfsberg. Spectra and electronic structure of fluorochromate ion, chromyl chloride, and some related compounds—853
Henkel, John H. Equation of state and the thermal dependence of the elastic coefficients of crystalline argon—681; erratum—1961(L)
Hennig, G. R. and J. D. McClelland. Magnetic susceptibility and free energy of graphite bromide—1431
Hepler, Loren G. Gas adsorption on heterogeneous surfaces —2110
Herman, Robert and Richard F. Wallis. Influence of vibration-rotation interaction on line intensities in vibration-rotation bands of diatomic molecules—637
Herrmann, Gabriel (see Weisbaum, Samuel)—1601
Hersh, Charles K. (see Brown, Callaway)—103, 1340
Herzberg, G. (see Courtoy, C. P.)—975(L)
Herzfeld, Charles M. On the dependence of the constants in the Curie-Weiss law on exchange—398(L)
—— (see Hutchison, Clyde A., Jr.)—1650
Hey, D. H. and G. H. Williams. Methyl and phenyl affinities of aromatic compounds—757(L)
Higgins, T. H. S., E. C. Leisegang, C. J. G. Raw, and A. J. Rossouw. Determination of the equilibrium constant of the reaction between BF_3 and BCl_3—1544(L)
—— **and C. J. G. Raw.** Problem of molecular association in liquid boron trifluoride—606(L)
Higgs, P. W. Perturbation method for the calculation of molecular vibration frequencies. II. Generalization of the theory—1448
—— Perturbation method for the calculation of molecular vibration frequencies. III. Skeletal stretching vibrations of normal paraffins—1450
Higman, Bryan. Note on the dodecahedral σ hybrids—977(L)
Higuchi, Jiro. Note on the absorption spectra of the methyl radical—2197(L)
Higuchi, William I. (see O'Konski, Chester T.)—1175(L)
Hildebrand, J. H. (see Watts, H.)—659
Hill, J. J. and P. Schwed. Experimental study of the mechanism of thermoluminescence in irradiated sodium chloride —652
Hill, Terrell L. Molecular clusters in imperfect gases—617
—— On first-order phase transitions in canonical and grand ensembles—812
—— Theory of protein solutions. I—623
—— Theory of protein solutions. II—2270
Hiller, L. A., Jr. (see Wall, F. T.)—913, 2314
Hirota, Eizi (see Morino, Yonezo)—737
Hirschfelder, Joseph O. (see Haugh, Eugene F.)—1778
—— (see Hornig, James F.)—474

Hirshberg, Yehuda and Ernst Fischer. Thermochromism and photochromism—1723(L)
Hirt, R. C. and R. G. Schmitt. Observed n-π^* bands in the ultraviolet absorption solution spectra of amino asymmetric triazines—600(L)
Hisatsune, I. C. and D. F. Eggers, Jr. Infrared intensities and bond moments in formaldehyde—487
——, **A. P. McHale, R. E. Nightingale, D. L. Rotenberg, and Bryce Crawford, Jr.** On the inhibition of the NO–NO_2O_5 reactions by NO_2—2467(L)
Hoare, James P. (see Schuldiner, Sigmund)—1551(L)
Hobson, Robert M. Ionization and dissociation processes in the vapors of lithium chloride, sodium chloride, and potassium chloride—2463(L)
Hoffman, James M. (see Dickey, Fred P.)—1718
Hoffman, John D. Theory of dielectric relaxation for a single-axis rotator in a crystalline field. II—1331
Hogan, R. S. (see Marburger, R. E.)—2448(L)
Holder, B. E. and M. P. Klein. Chemical shifts of nitrogen —1956(L)
Holleran, Eugene M. Interrelation of gaseous viscosity, self-diffusion, and isotopic thermal diffusion—847
Holser, William T. Proposed structure of certain spinels at high temperature—764(L)
Honig, J. M. Determination of adsorption energy heterogeneity of solid surfaces—1557(L)
—— **and P. C. Rosenbloom.** Use of interpolation theory in the analysis of gas adsorption isotherms. II. Estimation of certain parameters—2179
Hood, G. C., O. Redlich, and C. A. Reilly. Ionization of strong electrolytes. IV. Nuclear magnetic resonance and dissociation of trifluoroacetic acid—2229
Hooge, F. N. (see Ketelaar, J. A. A.)—413(L), 749(L), 1549(L)
Hopper, E. H. (see DeMarcus, W. C.)—1344(L)
Hornig, Donald F. and W. E. Osberg. Infrared spectrum and the structure of the low-temperature phases of crystalline HCl, HBr, and HI—662
—— (see Ferriso, C. C.)—1464
—— (see Flook, W. M., Jr.)—816
—— (see Plumb, Robert C.)—947
—— (see Reding, F. P.)—1053
Hornig, James F. and Joseph O. Hirschfelder. Magnetic shielding of nuclei in molecules by a variational method—474
Horton, William S. Least-squares calculation of OVFF force constants for XY_4 tetrahedral molecules—1727(L)
Hoskins, Raymond H. Paramagnetic resonance in semiquinone ions of substituted o-benzoquinones—1975(L)
—— **and B. R. Loy.** Paramagnetic resonance in solutions of oxidized pyrogallol—2461(L)
Houston, Edwin (see Duff, Russell E.)—1268
Howe, John A. and J. H. Goldstein. Microwave spectrum of propiolic aldehyde—1223
Howe, John P. Method of integrating the rate equations for free radical initiated polymerizations—899
Howland, William H. (see Lukesh, Joseph S.)—1923
Hu, Kuo-Hao (see Scott, Allen B.)—1830
Hubbard, J. C. (see Ener, Cavid)—155
—— (see Sette, D.)—787
Hudson, R. L. (see Foner, S. N.)—1364(L), 1974(L)
Huggins, Charles M. and George C. Pimentel. Infrared intensity of the C-D stretch of chloroform-d in various solvents—896
——, **George C. Pimentel, and James N. Shoolery.** Proton magnetic resonance studies of chloroform in solution: evidence for hydrogen bonding—1244
Hummel, R. W. (see Cormack, D. V.)—162
Hurlbut, C. S., Jr. (see Frondel, Clifford)—1215
Hush, N. S. and J. Blackledge. Electron interaction in hydrocarbon multiple ions—514
Hutchinson, E. and P. Pringsheim. Color centers in alkali halides containing NO_2^- ions in small concentration—1113
Hutchison, Clyde A., Jr., and Charles M. Herzfeld. Magnetic susceptibilities of some uranium (IV) compounds—1650

Ichishima, Isao (see Naito, Kazuo)—1907
Iguchi, Kaoru. π-electronic structure of the HCN molecule —1983
I'Haya, Y. Note on hyperconjugation—1165(L)
—— Third-order conjugation energies—1171(L)
Iimura, Fujiro (see Urushibara, Yoshiyuki)—759(L), 1724(L)
Ikeda, Kenro (see Urushibara, Yoshiyuki)—759(L), 1724 (L)
Inghram, Mark G., William A. Chupka, and Richard F. Porter. Mass spectrometric study of barium oxide vapor —2159
—— (see Chupka, W. A.)—203(L)
—— (see Porter, Richard F.)—216(L), 339, 1347(L)
Ingold, K. U. (see Bryce, W. A.)—1968(L)
Ingram, D. J. E. (see Bennett, J. E.)—215(L)
Irvin, John C. (see Burkhard, Donald G.)—1405; erratum —2469(L)
Isida, Sin-iti (see Kurata, Michio)—1126
Itoh, Takashi (see Nishikawa, Tetsuji)—1735(L)
—— (see Ohno, Kimio)—1468
—— (see Yoshizumi, Hiroyuki)—412(L)
Ivash, E. V., James C. M. Li, and Kenneth S. Pitzer. Thermodynamic properties of ideal gaseous methanol—1814

Jackson, D. S. and H. I. Schiff. Mass spectrometric investigation of active nitrogen—2333
Jacobs, P. W. M. and F. C. Tompkins. Ionic conductance of some solid metallic azides—1445
Jaffé, H. H. Some theorems concerning the mutual polarizabilities of atoms and bonds in conjugated molecules—1; erratum—2206(L)
Jain, P. L., J. C. Lee, and R. D. Spence. Proton magnetic resonance in liquid crystals—orientation effects—878
Jander, J. (see Haszeldine, R. N.)—979(L)
Jansen, John and Laurens M. Dawson. On intermolecular forces and the crystal structures of the rare gases—482; erratum—1729(L)
Jansen, Laurens (see Castle, Barbara J.)—1733(L)
Janz, George J. and Warren E. Fitzgerald. Infrared spectrum and molecular structure of succinonitrile—1973(L)
—— **and Samuel C. Wait, Jr.** Space-time yield and reaction rate—1550(L)
—— (see Duncan, Norman E.)—434
Jarmain, W. R. (see Nicholls, R. W.)—1561(L)
Jefferson, C. F. (see Grimes, D. M.)—2205(L)
Jeffrey, G. A. and W. J. McVeagh. Dimorphism of *para*-dichlorobenzene—1165(L)
—— **and G. S. Parry.** Crystal structure of aluminum nitride —406(L)
Jeffries, T. O., M. Derrick, and B. Musgrave. Surface tension of ether and pentane—1730(L)
Jenkins, A. C., F. S. DiPaolo, and C. M. Birdsall. System ozone-oxygen—2049
—— (see Birdsall, C. M.)—441
Jepson, W. B. and J. S. Rowlinson. Calculation of the correction to be applied to gas isotherms measured in the presence of mercury—1599

Jette, Eric R. Some physical properties of plutonium metal —365
Johns, H. E. (see Cormack, D. V.)—162
Johnson, B. H. (see Taylor, R. Dean)—1225
Jones, Llewellyn H. Infrared spectra and structure of the crystalline sodium acetate complexes of U(VI), Np(VI), Pu(VI), and Am(VI). A comparison of metal-oxygen bond distance and the bond force constant in this series—2105
—— Infrared spectrum of $Ni(CO)_4$ vapor—2448(L)
Jørgensen, Chr. Klixbüll. Absorption spectra of lanthanide and actinide ions—399(L)

Kagarise, R. E. On the structure of sym-tetrabromoethane—207(L)
—— **and L. W. Daasch.** Spectroscopic studies of rotational isomerism in fluorinated ethanes. I. 1,2-difluoro-1,1,2,2-tetrachloroethane—113
—— **and L. W. Daasch.** Spectroscopic studies of rotational isomerism in fluorinated ethanes. II. 1,2-dibromo-1,1,2,2-tetrafluoroethane—130
Kallmann, Hartmut, Bernard Kramer, and Eugene Sucov. Long time phosphorescence of organic crystals—1043
—— (see Furst, Milton)—607
Kandel, Richard J. Appearance potential studies. II. Nitromethane—84
Kane, Walter R. and K. C. Clark. Nitrogen afterglow in a magnetic field—859
Karle, I. L. Anomalous electron scattering from iodine vapor —1739(L)
—— (see Swick, D. A.)—1499
Kasha, M. (see McGlynn, S. P.)—593(L)
Kastha, G. S. (see Sirkar, S. C.)—2439(L)
Kastner, S. O., A. M. Russell, and J. W. Trischka. Variation with vibration of the fluorine spin-rotation interaction in Li^6F—1730(L)
Katlafsky, Bernard (see Beachell, Harold C.)—2171
Katti, P. K. and V. N. Wanchoo. Depolarization of light scattered by polymolybdates in acid and basic solutions—760(L)
Katz, Joseph J. (see Adams, Richard M.)—1622
—— (see Maybury, Robert H.)—1277
Katz, Thomas J. and John L. Margrave. Free energy functions for gaseous atoms from hydrogen ($Z=1$) to niobium ($Z=41$)—983(L)
Katzin, Leonard I. Regularities in the absorption spectra of halides—2055
Kaufman, Frederick and John R. Kelso. Reaction between nitric and nitrous oxide—602(L)
—— **and John R. Kelso.** Thermal decomposition of nitric oxide—1702
Kawai, Kiyoyasu (see Murata, Hiromu)—2451(L)
Kaylor, Hoyt M. and Alvin H. Nielsen. Infrared spectrum and molecular constants of CD_4—2139
Keii, Tominaga. Fine structure of olefine deuteration—210(L)
Keller, Seymour P. and Jackson J. Clemmons. Thermoluminescence and fluorescence in alkali halide crystals induced by soft x-ray—586(L)
Kelso, John R. (see Kaufman, Frederick)—602(L), 1702
Kendrick, W. M. (see Turner, T. E.)—1966(L)
Kenty, Carl. Active nitrogen in the rare gases and its excitation of metal vapors—1555(L); erratum—2468(L)
—— Streamer and brush flames excited by active nitrogen in the rare gases—1556(L)
Kerr, Eugene C. (see Bigeleisen, Jacob)—2442(L)
Ketelaar, J. A. A., J. P. Colpa, and F. N. Hooge. Pure rotational absorption spectrum of hydrogen—413(L)
—— **and F. N. Hooge.** Simultaneous vibrational transitions in liquids—749(L)
—— **and F. N. Hooge.** Simultaneous transitions in liquids. A new kind of molecular spectrum—1549(L)
Khan, N. A. Mechanism of the conversion of *cis-* to *trans-*modifications of the unsaturated higher fatty acid esters by nitrogen dioxide—2447(L)
Khosla, B. D. Influence of applied potential on the characteristics of photosensitive non-self-maintained region of a low-frequency electric discharge—1373(L)
—— (see Ramaiah, N. A.)—212(L)
Kikuchi, C. (see Singer, L. S.)—1738(L)
Kikuchi, Ryoichi. Theory of one-dimensional fluid binary mixtures—2327
Kilb, Ralph W. Internal barrier height of methyl mercaptan —1736(L)
Kilpatrick, John E. (see Taylor, R. Dean)—1225, 1232
Kilpatrick, Martin (see Palm, Ann)—1562(L)
King, I. R. and H. F. Calcote. Effect of initial temperature on minimum spark-ignition energy—2444(L)
—— **and H. F. Calcote.** Effect of probe size on ion concentration measurements in flames—2203(L)
Kirkwood, John G., Robert W. Zwanzig, and Richard J. Plock. Intrinsic viscosity of flexible macromolecules: Corrected tables—213(L)
—— (see Hammerle, W. G.)—1743
Kiss, A. I. and B. R. Muth. Spectroscopic studies of aromatic sulfides and selenides—2189(L)
—— **and B. R. Muth.** Spectroscopic studies of some aromatic acids with a heteroatom in the side-chain—2187(L)
Kistiakowsky, G. B. and P. H. Kydd. Gaseous detonations. VI. The rarefaction wave—271
—— **and R. Williams.** Kinetics of coordinate bond formation. II—334
—— **and Walter G. Zinman.** Gaseous detonations. VII. A study of thermodynamic equilibration in acetylene-oxygen waves—1889
Kivelson, Daniel. Theory of internal over-all rotational interactions. II. Hamiltonian for the nonrigid internal rotor—2230
—— Theory of internal over-all rotational interactions. III. Nonrigid asymmetric rotors—2236
—— (see Lide, David R., Jr.)—2191(L)
Klein, M. P. (see Holder, B. E.)—1956(L)
Klemperer, William. Infrared spectrum of LiH—2452(L)
Klemperer, William A. (see Pimentel, George C.)—376
Knipe, R. H. On the semiempirical treatment of the pi electrons of some halogen substituted benzene—2089
—— **and Alvin S. Gordon.** Spectrum of carbon monoxide-oxygen explosion. I. The visible spectrum—2097
Kobayashi, Masahisa and Junnosuke Fujita. Infrared absorption spectra of hexammine metal complexes—1354(L)
Koelsch, C. F. (see Wertz, John E.)—2194(L)
Koga, Toyoki. Extended interpretation of the Boltzmann-Maxwell equation (a theory of nonstationary random processes)—2275
Kohler, F. Shape of the consolute curve and its consequences for the theory of binary liquid mixtures of nonelectrolytes —1398
Kôi, Y., A. Tsujimura, and T. Fuke. Origin of the line width of pure quadrupole resonance—1346(L)
Koike, Mitsuru (see Odajima, Akira)—1959(L)
Kojima, S., K. Tsukada, S. Ogawa, and A. Shimauchi. Nuclear quadrupole resonances in solid iodine compounds —1963(L)
Kolin, Alexander. Electrophoretic "line spectra"—407(L)
Kolos, Wlodzimierz. Some remarks on the structure of NH_3 and PH_3 molecules—1554(L)
Komatsu, Chimao (see Tanaka, Ikuzo)—976(L)
Kon, Hideo. Simplified SCF calculation for fulvene—1176(L)

Kortüm, G., W. Theilacker, and V. Braun. Thermochromism and photochromism—1723(L)
Koski, W. S. (see Carlson, T. A.)—1596, 2410
Kostkowski, Henry J. (see Broida, Herbert P.)—754(L)
Kotera, Yoshihide. Activations by anions in the oxy-acid phosphors—219(L)
Kothary, N. C. (see Grimes, D. M.)—2205(L)
Kovács, I. (see Budó, A.)—751(L)
Kraitchman, J. and B. P. Dailey. Microwave spectrum of ethyl fluoride—184
Kramer, Bernard (see Kallmann, Hartmut)—1043
Kraut, J. and W. B. Dandliker. Light scattering by water—1544(L)
Kretschmar, George G. Determination of the velocity of sound in hydrazine-water mixtures by means of the Debye-Sears ultrasonic light diffraction phenomenon—2102
Krigbaum, W. R. Configuration of polymer molecules with excluded volume—2113
—— (see Bueche, F.)—1863
Krimm, Samuel. Frequency shift of the CO stretching band in polypeptides and proteins—1371(L)
Kromhout, R. A. and W. G. Moulton. Nuclear magnetic resonance: Structure of the amino group I—1673
Kurata, Michio and Sin-iti Isida. Theory of normal paraffin liquids—1126
——, **Mikio Tamura, and Tatsuro Watari.** Statistical mechanics of polymer solutions. Parts I and II—991
Kuratani, Kenji (see Naito, Kazuo)—1907
Kurland, R. J. Microwave spectrum and planarity of formamide—2202(L)
Kurosaki, Shigehiko, Shōgo Saitō, and Genju Satō. Transformation of adsorbed water on solid surfaces and its dielectric losses and conductivities—1846
Kwak, Nowhan, J. W. Simmons, and J. H. Goldstein. Microwave spectrum of propiolactone—2450(L)
Kydd, P. H. (see Kistiakowsky, G. B.)—271

Lackner, H. A. (see Smith, William V.)—389; errata—1559(L)
Ladd, J. R. (see McDonald, R. S.)—1170(L)
La Force, R. C. (see Weaver, H. E.)—1956(L)
Lakshmi, K. and J. H. Shaw. Absorption bands of N_2O near 4.5μ—1887
Landsberg, P. T. On the logarithmic rate law in chemisorption and oxidation—1079
Latimer, Wendell M. Single ion free energies and entropies of aqueous ions—90
Lauer, James L. (see Beachell, Harold C.)—2171
Lawson, A. W. (see Nachtrieb, Norman H.)—1193
Lee, J. C. (see Jain, P. L.)—878
Lefebvre, Roland and Carl M. Moser. Lowest singlet excited levels of naphthalene. II—754(L)
—— (see Brion, H.)—1972(L)
—— (see Moser, Carl M.)—598(L)
Leffler, John E. Entropy requirements of the Hammett relationship—2199(L)
Lefkovits, H. C., Janice Fain, and F. A. Matsen. Complete π-electron treatment of allyl radical and allyl ion—1690
Legvold, Sam (see Amme, Robert)—1960(L)
—— (see Rossing, Thomas D.)—1118
Leidheiser, Henry, Jr., and Frances H. Cook. Formation of photographic positives on strained single crystals of silver chloride—595(L)
Leisegang, E. C. (see Higgins, T. H. S.)—1544(L)
Leon, Herman I. On the molar sound velocity in liquids and the liquid state—983(L)
Lerner, R. G., J. P. Friend, and B. P. Dailey. Structure and barrier to internal rotation of formic acid from microwave data—210(L)
Levy, Eugene J. (see Beachell, Harold C.)—2168
Levy, Paul W. Reactor and gamma-ray induced coloring in crystalline quartz and Corning fused silica—764(L)
Lewinson, V. A. (see Alder, B. J.)—417
Li, James C. M. Concerning the temperature coefficient of the emf of reversible galvanic cells operated at variable concentration. II—2012
—— **and Pin Chang.** Self-diffusion coefficient and viscosity in liquids—518
—— (see Ivash, E. V.)—1814
Lide, David R., Jr., and Daniel Kivelson. Internal rotation in methyl-trifluoromethyl acetylene—2191(L)
—— (see Wilson, E. Bright, Jr.)—136
Liebson, S. H. Surface recombination of cadmium sulfide—1732(L)
—— **and E. J. West.** Effect of oxygen on luminescence of cadmium sulfide—977(L)
Lin, Chun Chia (see Wilson, E. Bright, Jr.)—136
Lindner, R. Studies on solid state reactions with radiotracers—410(L)
—— **and Arthur S. Obermayer.** Diffusion of radioactive calcium in $Ca_3Si_2O_7$—988(L)
Lindström, G. (see Bhar, B. N.)—1958(L)
Linnell, Robert H. (see Vinogradov, Serge N.)—93
Linschitz, Henry (see Abrahamson, Edwin W.)—2198(L)
Lippincott, Ellis R. Derivation of an internuclear potential function from a quantum mechanical model—603(L)
—— **and Edward J. O'Reilly, Jr.** Vibrational spectra and assignment of naphthalene and naphthalene-*d*-8—238
—— **and Rudolph Schroeder.** General relation between potential energy and internuclear distance for diatomic and polyatomic molecules. I—1131
—— **and Rudolph Schroeder.** One-dimensional model of the hydrogen bond—1099
Lipscomb, William N. (see Atoji, Masao)—1176(L)
Longuet-Higgins, H. C. (see Beer, Michael)—1390
—— (see Murrell, J. N.)—2347
Looney, F. S. (see Douglas, John E.)—315
—— (see Rabinovitch, B. S.)—2439(L)
Lord, R. C. (see Baker, A. W.)—1636
Lorell, Jack and Henry Wise. Steady-state burning of a liquid droplet. I. Monopropellant flame—1928
Lossing, F. P. (see Farmer, J. B.)—403(L), 1169(L)
Löwdin, Per-Olov (see Shull, Harrison)—1362(L), 1565(L)
Loy, B. R. (see Hoskins, R. H.)—2461(L)
Luckey, George W. Vacuum photolysis of silver bromide and silver chloride—882; erratum—2206(L)
Luft, Norbert W. Bond energies in organic fluorine compounds—973(L)
Lukesh, Joseph S., William H. Howland, Leo F. Epstein, and Marion D. Powers. Liquid metals. II. X-ray diffraction by liquid mercury and the distance of closest atomic approach—1923
Lumry, R. W. (see Reynolds, W. L.)—2460(L)
Luner, C. and M. Szwarc. Photosensitized decomposition of acetyl peroxide—1978(L)
Lyons, L. E. Photoconductance in tetracene-type crystals: Theory of the spectral dependence—220(L)
—— Polarized spectra of anthracene crystals and Davydov splitting—1973(L)

McAfee, K. B., Jr. Pulse technique for measurement of the probability of formation and mobility of negative ions—1435
McCall, D. W. (see Gutowsky, H. S.)—982(L)
McCallum, K. J. (see Sharman, L. J.)—597(L)
McClellan, A. L. and George C. Pimentel. Vibrational assignment and thermodynamic properties of naphthalene—245

—— (see Pimentel, George C.)—234
McClelland, J. D. (see Hennig, G. R.)—1431
McClure, Donald S. and Phillip L. Hanst. Excited triplet states of polyatomic molecules. II. Flash-lamp studies on aromatic ketones—1772
—— **and Otto Schnepp.** Electronic states of the naphthalene crystal—1575
—— (see Gilmore, Earl H.)—399(L)
McConnell, Harden M. Dirac vector model for electron coupled nuclear spin interactions—2454(L)
—— Molecular orbital approximation to electron-spin coupled nuclear spin-spin interactions in molecules—760(L)
—— Remarks on nitric oxide catalyzed *cis-trans* isomerization of dideuteroethylene—2440(L)
——, **A. D. McLean, and C. A. Reilly.** Analysis of spin-spin multiplets in nuclear magnetic resonance spectra—1152
—— **and D. D. Tunnicliff.** Ultraviolet absorption spectra of methylnaphthalenes at 77°K—927
McDonald, C. C. and H. E. Gunning. Decomposition of ammonia photosensitized by mercury $6(^3P_1)$ atoms—532
McDonald, R. S., J. H. Gibbs, and J. R. Ladd. Absence of hydrogen bonding in an alcohol-fluorohydrocarbon system —1170(L)
McDonell, William R. Decomposition of methyl alcohol—Water solutions by Co^{60} gamma radiation—208(L)
—— **and Sheffield Gordon.** Decomposition of methyl alcohol by Co^{60} gamma radiation—208(L)
McDowell, C. A. (see Allen, G.)—209(L)
McFadden W. H. (see Dudley, R. S.)—585(L)
McGlynn, S. P., M. R. Padhye, and M. Kasha. Lowest triplet levels of the polyacenes—593(L)
McHale, A. P. (see Hisatsune, I. C.)—2467(L)
McKinley, J. D., Jr., David Garvin, and M. J. Boudart. Production of excited hydroxyl radicals in the hydrogen atom-ozone reaction—784
McLean, A. D. (see McConnell, H. M.)—1152
McVeagh, W. J. (see Jeffrey, G. A.)—1165(L)
Maccoll, Allan and P. J. Thomas. Mechanism of the pyrolysis of ethyl bromide. A note on a paper by Friedman, Bernstein, and Gunning—1722(L)
Macdonald, James Ross. Capacitance and conductance effects in photoconducting alkali halide crystals—275
—— Note on theories of time-varying space-charge polarization—2308
Maček, Andrej (see Griffing, Virginia)—1029
Madan, M. P. Exp: Six potential and properties of gases—763(L)
Madden, R. P. and W. S. Benedict. Pure rotation lines of OH—408(L)
Magee, John L. (see Burton, Milton)—2194(L), 2195(L)
Malhiot, Robert J. and Salvador M. Ferigle. Explicit derivation for the *s* vectors in the normal coordinate treatment of molecular vibrations—30
Malm, John G., Bernard Weinstock, and Howard H. Claassen. Infrared spectra of NpF_6 and PuF_6—2192(L)
Mann, D. E., N. Acquista, and Earle K. Plyler. Vibrational spectrum of 1-fluoro-1-chloroethylene—2122
—— **and Earle K. Plyler.** Vibrational spectrum of fluorotrichloroethylene—1989
Manning, B. (see Pannell, J. H.)—1368(L)
Many, A., E. Harnik, and D. Gerlich. On the semiconductivity of crystalline aromatic substances—1733(L)
Marburger, R. E., D. C. Reynolds, L. L. Antes, and R. S. Hogan. Quantum yield of a cadmium sulfide photovoltaic cell—2448(L)
Marcus, R. A. Calculation of thermodynamic properties of polyelectrolytes—1057
—— Treatment of isotopic exchange reactions having complex mechanisms—1107
Margrave, John L. (see Katz, Thomas J.)—983(L)
Marsden, D. G. H. (see Farmer, J. B.)—403(L), 1169(L)
Mason, Edward A. Calculation of interaction potentials from scattering cross sections—2457(L)
—— Forces between unlike molecules and the properties of gaseous mixtures—49
—— (see Amdur, I.)—415, 2268
Massey, J. T. and Robert W. Hart. Effect of a high *cis*-barrier on the microwave spectrum of hydrogen peroxide —942
Masters, Joseph I. Some applications in physics of the *P* function—1865
Mastrangelo, S. V. R. (see Aston, J. G.)—1633
Matheson, Max S. and Bernard Smaller. Paramagnetic species in gamma-irradiated ice—521
—— (see Grossweiner, L. I.)—2443(L)
Mathot, V., L. A. K. Staveley, J. A. Young, and N. G. Parsonage. Thermodynamic properties of the system methane-carbon monoxide at 90.67°K—1551(L)
Matlow, Sheldon L. LCAO MO study of the phenomenon of thermochromism—152
—— LCAO MO study of the structure of chlorophyll prototypes—673
Matsen, F. A. (see Gerhauser, J. M.)—1359(L)
—— (see Lefkovits, H. C.)—1690
—— (see Robertson, W. W.)—2468(L)
Mattraw, H. C., N. J. Hawkins, D. R. Carpenter, and W. W. Sabol. Infrared spectrum of iridium hexafluoride —985(L)
—— (see Hawkins, N. J.)—2191(L), 2422
Matubara, Ikuo (see Anno, Tosinobu)—796
Maybury, Robert H., Sheffield Gordon, and Joseph J. Katz. Infrared spectra of liquid anhydrous hydrogen fluoride, liquid sulfur dioxide, and hydrogen fluoride-sulfur dioxide solutions—1277
Mayo, Dana W., Herman E. Opitz, and John S. Peake. Vibrational spectra of SiH_3Br and SiH_2Br_2—1344(L)
Meister, Arnold G. (see Murata, Hiromu)—702
—— (see Palm, Ann)—726
—— (see Polo, Santiago R.)—833
—— (see Weissman, Herman B.)—544
Merrifield, R. E. Exciton multiplicities—402(L)
Meyer, L. H. (see Gutowsky, H. S.)—982(L)
Meyer, Lothar (see Gomer, Robert)—1370(L)
Meyer, Robert E. and Norman H. Nachtrieb. Self-diffusion in sodium near the melting point—405(L)
—— **and N. H. Nachtrieb.** Self-diffusion of liquid sodium —1851
Mickelsen, W. R. and N. E. Ernstein. Effect of turbulence on free flame growth—1558(L)
Mignolet, J. C. P. Relation between the surface potential and the interaction energy in the case of some hydrogen films—753(L)
Mikhail, H. (see Yousef, Y. L.)—959
Miller, B. L. High-energy secondary electrons—599(L)
Miller, Eugene (see Haskins, J. R.)—755(L)
Miller, Foil A., Roy B. Hannan, Jr., and Lauren R. Cousins. Infrared and Raman spectra of dicyanoacetylene. II. —2127
Miller, John G. (see Pfefferle, William C., Jr.)—509
Miller, Sidney I., Alfons Weber, and Forrest F. Cleveland. Raman and infrared spectral data and tentative assignments for *cis-* and *trans*-diiodoethylene—44
Miller, Warren W., Edward P. Rack, Elliot Burrell, and Conrad N. Trumbore. Organic radiation reactions with dissolved radioactive iodine—2457(L)
Minden, Henry T. Effects of oxygen on PbS films—1948
Mitra, Shashanka Shekhar and Nitish Kumar Sanyal. Surface tension temperature relation—1737(L)

Mizushima, San-ichiro, Ichiro Nakagawa, and J. V. Quagliano. Infrared absorption spectra of inorganic coordination complexes. III. Deformation frequencies of the NH_3 ligand—1367(L)
—— (see Naito, Kazuo)—1907
—— (see Shimanouchi, Takehiko)—707
Mohanty, S. R. Mechanism of potential inversion of the Joshi effect—1533
Monfils, André (see Duchesne, Jules)—762(L), 1969(L)
Moore, George E. and H. W. Allison. Adsorption of strontium and of barium on tungsten—1609
Moore, W. J. (see Secco, E. A.)—1170(L)
Moran, Norma B. (see Nielsen, J. Rud)—329
Morino, Yonezo and Eizi Hirota. Mean amplitudes of thermal vibrations in polyatomic molecules. III. The generalized mean amplitudes—737
Morrow, J. C. Series solutions for the rate equations of complex reaction mechanisms—2452(L)
Moser, Carl M. and Roland Lefebvre. Lowest singlet excited levels of naphthalene—598(L)
—— (see Brion, H.)—1972(L)
—— (see Lefebvre, Roland)—754(L)
Moulton, W. G. (see Kromhout, R. A.)—1673
Muckenfuss, Charles, C. F. Curtiss, and R. B. Bird. Second virial coefficient for ellipsoids with imbedded dipoles—1542(L)
Mueller, C. R. Delocalization and approximation methods—1726(L)
Mulliken, R. S. Electronic population analysis on LCAO-MO molecular wave functions. I—1833
—— Electronic population analysis on LCAO-MO molecular wave functions. II. Overlap populations, bond orders, and covalent bond energies—1841
—— Electronic population analysis on LCAO-MO molecular wave functions. III. Effects of hybridization on overlap and gross AO populations—2338
—— Electronic population analysis on LCAO-MO molecular wave functions. IV. Bonding and antibonding in LCAO and valence-bond theories—2343
—— Molecular compounds and their spectra. V. Orientation in molecular complexes—397(L)
—— (see Wilkinson, P. G.)—1895
Murakami, Hideo. Note on the interaction and configuration in chlorine-benzene complex—1957(L)
—— Supplementary comments on the "Electronic structure of the amylose-iodine complex"—1979(L)
Murata, Hiromu and Kiyoyasu Kawai. Calculated fundamental vibrational frequencies for bromosilanes—2451(L)
——, **Ann Palm, and Arnold G. Meister.** Substituted methanes. XXV. Potential constants and calculated thermodynamic properties of dibromofluoromethane—702
—— **and Kazuhiro Shimizu.** Structure of hexamethyldisilane—1968(L)
Murgai, M. P. Erratum: Application of the Hertz theory of impact to explosion phenomena—221(L)
Murrell, J. N. and H. C. Longuet-Higgins. Electronic spectrum of the cycloheptatrienyl (tropylium) ion—2347
Musgrave, B. (see Jeffries, T. O.)—1730(L)
Muth, B. R. (see Kiss, A. I.)—2187(L), 2189(L)
Myers, Rollie J. (see Fernandez, Jose)—758(L)
Myers, Vernon W. Effect of a repulsive force on the scattering of ions by molecules—755(L)

Nachtrieb, Norman H. and George S. Handler. Self-diffusion in α white phosphorus—1187
—— **and George S. Handler.** Self-diffusion in lead—1569
—— **and A. W. Lawson.** Effect of pressure on self-diffusion in white phosphorus—1193
—— (see Meyer, Robert E.)—405(L), 1851
Nagakura, Saburo. Intramolecular charge transfer spectra observed with some compounds containing the nitro or the carbonyl group—1441
Nagano, Hiroshi (see Oshima, Keichi)—1473, 1721(L)
Nagusa, Mahoko (see Oshima, Keichi)—1721(L)
Naito, Kazuo, Ichiro Nakagawa, Kenji Kuratani, Isao Ichishima, and San-ichiro Mizushima. Infrared and Raman spectra of 1,1,2,2-tetrachloroethane; calculation of normal vibrations—1907
Nakagawa, Ichiro (see Mizushima, San-ichiro)—1367(L)
—— (see Naito, Kazuo)—1907
Nakahara, Akitsugu (see Fujita, Junnosuke)—1541(L)
Nakajima, Takeshi. Atom-stabilization energies in conjugated systems—587(L)
Nakamoto, Kazuo (see Rundle, R. E.)—2450(L)
Negita, Hisao. Evidence for the interconversion of monochloroacetic acid by its pure quadrupole spectrum—214(L)
Nelson, R. C. Mobility and quantum yield of charge carriers in crystal violet—1550(L)
Nelson, Richard C. and William T. Simpson. Low resolution electronic spectrum of hexamethylbenzene with application to benzene—1146
Nettleton, R. E. On the application of the kinetic theory of liquids of Born and Green to the problem of the calculation of the volume viscosity—1560(L)
Neumark, G., J. Fajans, and D. R. Frankl. Thermoluminescence measurements on ZnS phosphors *in vacuo*—1553(L)
Newell, Gordon F. Specific heat of lamellar crystals—2431
Nicholls, R. W. and W. R. Jarmain. *r*-centroids for diatomic molecules—1561(L)
Nichols, Nathan L., C. D. Hause, and R. H. Noble. Near infrared spectrum of nitric oxide—57
Nielsen, Alvin H. (see Kaylor, Hoyt M.)—2139
Nielsen, J. Rud, Howard H. Claassen, and Norma B. Moran. Infrared and Raman spectra of fluorinated ethanes. VIII. Pentafluoroethane—329
——, **M. Z. El-Sabban, and Morris Alpert.** Vibrational spectra of cyclobutforene (hexafluorocyclobutene)—324
——, **C. W. Gullikson, and A. H. Wollett.** Infrared and Raman spectra of fluorinated ethylenes. VI. Fluorotrichloroethylene—1994
—— (see Collins, R. L.)—351
Nightingale, R. E. (see Hisatsune, I. C.)—2467(L)
Nishikawa, Tetsuji, Takashi Itoh, and Koichi Shimoda. Molecular structure of methylamine from its microwave spectrum—1735(L)
Nitta, Isamu (see Tadokoro, Hiroyuki)—1351(L)
Noble, R. H. (see Nichols, Nathan L.)—57
Nowacki, Werner. Number of x-ray diffraction groups—1172(L)
Noyes, Richard M. Magnitude of diffusive displacements in liquids—1982(L)

Obermayer, Arthur S. (see Lindner, R.)—988(L)
Odajima, Akira, Junkichi Sohma, and Mitsuru Koike. Line-width transition of the proton magnetic resonance in polymers—1959(L)
Odiot, Simone (see Daudel, Raymond)—2080
Ogawa, S. (see Kojima, S.)—1963(L)
Ohno, Kimio and Takashi Itoh. Modified atomic orbital method. I. The electronic structure of the ethylene molecule—1468
O'Konski, Chester T. Calculation of electrostatic binding energies in systems of isotropic ions—1174(L)
—— Effect of interfacial conductivity on dielectric properties—1559(L)
—— **and William I. Higuchi.** Structure and calculation of

the binding energy of gaseous alkali halide dimers—1175 (L)
Oldenberg, O. (see Groth, W. E.)—729
O'Loane, J. Kenneth and M. Kent Wilson. Infrared spectrum of SOF_2—1313
Olsen, H. L. and E. L. Gayhart. Effect of turbulence on incipient flame propagation—402(L)
Opitz, Herman E. (see Mayo, Dana W.)—1344(L)
Ordway, Girard L., Paul C. Cross, and Edward J. Bair. Asymmetric rotor. XII. The infrared spectrum of hydrogen sulfide from 7480 to 7880 cm^{-1}—541
O'Reilly, Edward J., Jr. (see Lippincott, Ellis R.)—238
Orgel, L. E. Band widths in the spectra of manganous and other transition-metal complexes—1824
—— Electronic structures of transition-metal complexes—1819
—— Ionization potentials and charge-transfer spectra of substituted benzenes—1352(L)
—— Phosphorescence of solids containing the manganous or ferric ions—1958(L)
—— Spectra of transition-metal complexes—1004
—— (see Dunitz, J. D.)—954
Osberg, W. E. (see Hornig, D. F.)—662
Oshima, Keichi, Hidetaro Abe, Hiroshi Nagano, and Mahoko Nagusa. Paramagnetic resonance of NaCl crystals containing additions of manganese impurity—1721(L)
—— **and Hiroshi Nagano.** Magnetism on optical excitation of manganese-activated zinc sulfide phosphors—1473
Owen, Henry R. (see Schaeffer, Oliver A.)—1305

Pace, E. L., Kent S. Dennis, and W. T. Berg. Thermodynamic properties of krypton adsorbed on titanium dioxide (rutile)—2166
—— **and Louis Pierce.** Infrared and Raman spectra of nitrogen trifluoride—1248
—— (see Pierce, Louis)—551
Padhye, M. R. (see McGlynn, S. P.)—593(L)
Palik, E. D. Pure rotational spectra of DBr, HI, and DI in the spectral region between 45 and 170 microns—217(L)
—— Pure rotational spectrum of H_2Se between 50 and 250 cm^{-1}—980(L)
—— (see Rao, K. Narahari)—2112
Palm, Ann and Martin Kilpatrick. Barrier height and thermodynamic functions of gaseous HNO_3 and DNO_3—1562(L)
——, **Fred L. Voelz, and Arnold G. Meister.** Substituted methanes. XXII. Infrared spectra of $CHBrF_2$, and potential constants and calculated thermodynamic properties of $CHBrF_2$ and $CDBrF_2$—726
—— (see Murata, Hiromu)—702
—— (see Polo, Santiago R.)—833
Palmer, Howard B. Emission and two-body recombination in bromine—2449(L)
Pannell, J. H. and B. Manning. Production of a blue color in irradiated plastic scintillators—1368(L)
Pant, L. M. (see Saksena, B. D.)—987(L), 989(L)
Pariser, Rudolph (see Parr, Robert G.)—711
Parr, Robert G. and Rudolph Pariser. On the electronic structure and electronic spectra of ethylene-like molecules—711
Parravano, G. Thermoelectric behavior of nickel oxide—5
Parry, G. S. (see Jeffrey, G. A.)—406(L)
Parsonage, N. G. (see Mathot, V.)—1551(L)
Pastor, Ricardo C. and John Turkevich. Paramagnetic absorption of potassium complexes of aromatic compounds—1731(L)
Patterson, D. (see Benson, G. C.)—670
Peake, John S. (see Mayo, Dana W.)—1344(L)
Pellam, J. R. (see Broida, H. P.)—409(L)
Penner, S. S. and H. Aroeste. On the determination of absolute intensities from single- and multiple-path absorption measurements—2244
—— **and E. K. Björnerud.** Experimental determination of rotational temperatures and concentrations of OH in flames from emission spectra—143
—— (see DePrima, C. R.)—757(L)
Penny, H. C. and Henry Aroeste. Vibrational relaxation times of diatomic molecules and rocket performance—1281
Person, Willis B., George C. Pimentel, and Otto Schnepp. Infrared studies of naphthalene and naphthalene-d_8—230
—— (see Pimentel, George C.)—234
—— (see Williams, Dale G.)—179
Peterlin, Anton. Excluded volume effect on light scattering of the coiled linear macromolecule—2464(L)
—— Intrinsic viscosity of polymethylmethacrylate—750(L)
Peters, E. (see Halpern, J.)—605(L)
Pfefferle, William C., Jr., John A. Goff, and John G. Miller. Compressibility of gases. I. The Burnett method. An improved method of treatment of the data. Extension of the method to gas mixtures—509
Phillips, C. S. E. Line broadening and dielectric relaxation in compressed gases—2388
Phillips, W. D. Restricted rotation in amides as evidenced by nuclear magnetic resonance—1363(L)
Pickett, Lucy W. (see Stokes, Suzanne)—258
Pierce, Louis and E. L. Pace. Thermodynamic properties of nitrogen trifluoride from 12°K to its boiling point. The entropy from molecular and spectroscopic data—551
—— (see Pace, E. L.)—1248
Pimentel, George C. and William A. Klemperer. Infrared spectrum of solid *n*-octane-1,1,1,8,8,8-d_6—376
——, **A. L. McClellan, Willis B. Person, and Otto Schnepp.** Interpretation of the infrared spectrum of a molecular crystal: naphthalene—234
—— (see Dows, David A.)—499, 1258, 1475, 1606
—— (see Huggins, Charles M.)—896, 1244
—— (see McClellan, A. L.)—245
—— (see Person, Willis B.)—230
Piontelli, R. and G. Sternheim. Overvoltages at the electrode: melted $Pb/PbCl_2$—1358(L)
—— **and G. Sternheim.** Overvoltages in melted electrolytes—1971(L)
Pitzer, Kenneth S. London force contributions to bond energies—1735(L)
—— (see Ivash, E. V.)—1814
Plock, Richard J. (see Kirkwood, John G.)—213(L)
Plumb, Robert C. and Donald F. Hornig. Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride—947
Plyler, Earle K. and Nicolo Acquista. Small grating spectrometer for the far infrared region—752(L)
—— (see Allen, Harry C., Jr.)—1356(L)
—— (see Mann, D. E.)—1989, 2122
Polanyi, J. C. Rates of isotopic reactions between methyl and hydrogen—1505
Poley, J. Ph. Microwave dispersion of monosubstituted benzenes; evidence for molecular resonance absorption—405(L)
Polo, Santiago R., Ann Palm, Fred L. Voelz, Forrest F. Cleveland, Arnold G. Meister, Richard B. Bernstein, and Robert H. Sherman. Substituted methanes. XXVI. Raman and infrared spectral data, assignments, potential constants, and thermodynamic properties for $CHBrCl_2$ and $CDBrCl_2$—833
—— **and M. Kent Wilson.** Infrared intensities in liquid and gas phases—2376

Porter, Richard F., William A. Chupka, and Mark G. Inghram. Mass spectrometric study of gaseous species in the Si-SiO_2 system—216(L)
——, **William A. Chupka, and Mark G. Inghram.** On the dissociation energies of SrO and MgO molecules—1347(L)
——, **Paul Schissel, and Mark G. Inghram.** Mass spectrometric study of gaseous species in the Al-Al_2O_3 system—339
—— (see Inghram, Mark G.)—2159
Posener, D. W. Note on the X-band microwave spectrum of heavy water—1728(L)
Potter, R. F. Ion-atom interchange in air—2462(L)
Potts, W. J., Jr. Low-temperature absorption spectra of benzene, toluene, and para-xylene in the farther ultraviolet region—73
—— Low-temperature absorption spectra of selected olefins in the farther ultraviolet region—65
Powers, Marion D. (see Lukesh, Joseph S.)—1923
Powles, J. G. and H. S. Gutowsky. Proton magnetic resonance of the CH_3 group. III. Reorientation mechanism in solids—1692
Prager, Stephen. Free convection between two vertical plates in the presence of an inclined temperature gradient—1742(L)
—— Interaction of rotational and translational diffusion—2404
Prater, C. D. (see Weisz, P. B.)—1965(L)
Price, A. H. (see Davies, Mansel)—2204(L)
Pringsheim, P. Absorption spectrum of $NaNO_3$ exposed to ionizing radiation—369
—— (see Hutchinson, E.)—1113
Puranik, P. G. Study of chelation through Raman effect—761(L)

Quagliano, J. V. (see Mizushima, San-ichiro)—1367(L)

Rabinovitch, B. S. and F. S. Looney. Nitric oxide catalyzed *cis-trans* isomerization of dideuteroethylene—2439(L)
—— (see Douglas, John E.)—315
Rack, Edward P. (see Miller, Warren W.)—2457(L)
Raffel, H. (see Collins, F. C.)—1454
Ramachandran, G. N. Infrared spectrum and structure of collagen—600(L)
Ramaiah, N. A., B. D. Khosla, and H. C. Gaur. On photovariation of conductivity in non-self-maintained region of a low-frequency electric discharge—212(L)
Ramsey, William J. and Don M. Yost. Iron-catalyzed reaction between nitrosyl disulfonate and hydroxylamine monosulfonate ions—2153
Rao, K. Narahari and E. D. Palik. Resolution of $\mu_{11}(E)$ of allene at 28μ—2112
Rastrup-Andersen, John (see Andersen, F. Allan)—1047
Raw, C. J. G. Interdiffusion in the gaseous systems: BF_3—CCl_4 and BCl_3—CCl_4—973(L)
—— (see Higgins, T. H. S.)—606(L), 1544(L)
Reding, F. P. and D. F. Hornig. Vibrational spectra of molecules and complex ions in crystals. VIII. The infrared spectrum of a mixed crystal of 1-deutero-ammonia and 2-deutero-ammonia—1053
Redlich, O. (see Hood, G. C.)—2229
Reeder, S. D. (see Smith, R. R.)—2108
Reilly, C. A. (see Hood, G. C.)—2229
—— (see McConnell, H. M.)—1152
Reiss, Howard (see Glazer, Herbert)—937
Reitzel, J. Infrared spectra of SiO_2 from 400 to 600 cm^{-1}—2407
Rembaum, A. and M. Szwarc. O—O bond dissociation energies in propionyl and butyryl peroxides—909
Reynolds, D. C. (see Marburger, R. E.)—2448(L)
Reynolds, W. L. and R. W. Lumry. Role of water in oxidation-reduction reactions—2460(L)
Rice, D. W. (see Stephenson, C. C.)—1960(L)
Rice, O. K. Relation between isotherms and coexistence curve in the critical region—169
—— Shape of the coexistence curve near the critical temperature—164
—— (see Gopal, Ram)—2428
—— (see Widom, B.)—1250
Richardson, James W. (see Rundle, R. E.)—2450(L)
Richardson, John M. Variational theory of the radial distribution function—2304
Rider, John A. Electrochemical polarization in isopropyl ether—61
Rider, Paul R. (see Harter, H. Leon)—1966(L)
Rittenhouse, K. D. (see Weisz, P. B.)—1965(L)
Robertson, W. W. and F. A. Matsen. Ultraviolet absorption spectrum of benzene in *N*-hexane at pressures to 6000 bars—2468(L)
Rohrbaugh, J. H. (see Gerson, Robert)—2381
Ropp, Gus A. Examination of the isotope effect in the condensation of *o*-benzoylbenzoic acid-carboxyl-C^{14} to anthraquinone-9-C^{14}—2196(L)
Rosenbloom, P. C. (see Honig, J. M.)—2179
Rosenbluth, Arianna W. (see Rosenbluth, Marshall N.)—356
Rosenbluth, Marshall N. and Arianna W. Rosenbluth. Monte Carlo calculation of the average extension of molecular chains—356
Rosenstock, H. M., J. R. Sites, J. R. Walton, and Russell Baldock. Mass spectra of CuCl, CuBr, and CuI—2442(L)
——, **A. L. Wahrhaftig, and H. Eyring.** Metastable ions in mass spectra—2200(L)
Rosenstock, Herbert B. On the optical properties of solids—2415
Rosser, Shirley E. (see Weissman, Herman B.)—544
Rossing, Thomas D. and Sam Legvold. Collision excitation of molecular vibrations in halogen-substituted methanes—1118
Rossmann, Kurt. Absorption spectrum of polyethylene in the near infrared—1355(L)
Rossouw, A. J. (see Higgins, T. H. S.)—1544(L)
Rotenberg, D. L. (see Hisatsune, I. C.)—2467(L)
Rothstein, Jerome. Dislocation model of liquids—218(L)
Rowlinson, J. S. (see Jepson, W. B.)—1599
Rubin, Robert J. Quantum-mechanical properties of a one-dimenisonal system composed of hard spheres—1183
Ruedenberg, Klaus. Errata: Free-electron network model for conjugated systems. V. Energies and electron distributions in the Fe Mo model and in the LCAO Mo model—401(L)
Rüetschi, Paul and Paul Delahay. Electron theory of metals and hydrogen overvoltage—1167(L)
—— **and Paul Delahay.** Hydrogen overvoltage and electrode material. A theoretical analysis—195
—— **and Paul Delahay.** Influence of electrode material on oxygen overvoltage: a theoretical analysis—556
—— **and Paul Delahay.** Potential at zero charge for reversible and ideal polarized electrodes—697
Rundle, R. E., Kazuo Nakamoto, and James W. Richardson. Concerning hydrogen positions in aquo-complexes—$CuCl_2 \cdot 2H_2O$—2450(L)
Russell, A. M. (see Kastner, S. O.)—1730(L)
Sabol, W. W. (see Hawkins, N. J.)—2191(L), 2422
—— (see Mattraw, H. C.)—985(L)

Sadô, Akira and Tosinobu Anno. Near ultraviolet absorption spectra of *ortho-*, *meta-*, and *para*-phenylenediamine vapors—1740(L)
Saitô, Shôgo (see Kurosaki, Shigehiko)—1846
Saksena, B. D. and L. M. Pant. Cathodo-luminescence spectrum and energy levels in MgO—989(L)
—— **and L. M. Pant.** Relative intensities of anthracene and naphthacene emissions under cathode-ray, ultraviolet, and x-ray excitations—987(L)
Sancier, Kenneth M. (see Sayre, Edward V.)—2060
Sanderson, R. T. Divalent hydrogen in the FHF^- ion—217(L)
—— Relation of stability ratios to Pauling electronegativities—2467(L)
Sandros, Kjell (see Bäckström, Hans L. J.)—2197(L)
Sangster, R. C. and J. N. Carman, Jr. Contraction of germanium on melting—206(L)
—— **and J. N. Carman, Jr.** Liquid surface tension measurements by analysis of solid-state curvatures; the surface tension of liquid germanium—1142
Sanyal, Nitish Kumar (see Mitra, Shashanka Shekhar)—1737(L)
Sasaki, Taizo (see Akao, Humio)—2210
Satô, Genju (see Kurosaki, Shigehiko)—1846
Sato, Shin. On a new method of drawing the potential energy surface—592(L)
—— Potential energy surface of the system of three atoms—2465(L)
Satten, Robert A. Reply to Jørgensen's Letter, Absorption spectra of lanthanide and actinide ions—400(L)
—— **and D. J. Young.** Symmetry of the local crystalline field about rare earth ions in octahydrated sulfate crystals—404(L)
Saxena, S. C. and B. N. Srivastava. Second approximation to the thermal diffusion factor on the Lennard-Jones 12:6 model—1571
Sayre, Edward V. and Simon Freed. Absorption spectrum and quantum states of the praseodymium ion. II. Anhydrous praseodymium fluoride in films—2066
——, **Kenneth M. Sancier, and Simon Freed.** Absorption spectrum and quantum states of the praseodymium ion. I. Single crystals of praseodymium chloride—2060
Schaeffer, Oliver A. Effect of isotopic substitution on the mass spectra of molecules. III. Carbon dioxide, theoretical interpretation—1309
—— **and Henry R. Owen.** Effect of isotopic substitution on the mass spectra of molecules. II. Oxygen and carbon dioxide, experimental—1305
—— (see Thompson, S. O.)—759(L)
Schawlow, A. L. (see Geller, S.)—779
Scheer, Milton D. Gas phase oxidation of formaldehyde—1357(L)
Scheraga, Harold A. Non-Newtonian viscosity of solutions of ellipsoidal particles—1526
Scherr, Charles W. SCF LCAO MO study of N_2—569
Schiessler, R. W. (see Cutler, W. G.)—2466(L)
Schiff, H. I. (see Jackson, D. S.)—2333
Schissel, Paul (see Porter, Richard F.)—339
Schissler, D. O. (see Stevenson, D. P.)—1353(L)
Schmitt, R. G. (see Hirt, R. C.)—600(L)
Schneider, E. E. Paramagnetic resonance of x-rayed Teflon—978(L)
Schneider, Robert F. (see Friend, James P.)—1557(L)
Schneider, W. G. Properties of the hydrogen bond. The role of lone pair electrons—26
—— (see Whalley, E.)—1644
Schnepp, Otto (see Fox, David)—767
—— (see McClure, Donald S.)—1575
—— (see Person, Willis B.)—230
—— (see Pimentel, George C.)—234
Schofield, E. B. (see Thomas, Lloyd B.)—861
Schroeder, Rudolph (see Lippincott, Ellis R.)—1099, 1131
Schuldiner, Sigmund and James P. Hoare. Note on the potential of the α-Pd/H_2 electrode—1551(L)
Schultz, Robert D. and Albert O. Dekker. Absolute thermal decomposition rates of solids. Part II. The vacuum sublimation rate of molecular crystals—2133
Schwartz, H. M. Excitation of molecules in the beta decay of a constituent atom—400(L)
Schwed, P. (see Hacskaylo, M.)—1362(L)
—— (see Hill, J. J.)—652
Schwendeman, R. H. (see Bartell, L. S.)—1854
Scott, Allen B. and Kuo-Hao Hu. Absorption spectra of luminescent thallous chloride solutions—1830
Scott, E. J. Single crystals of the oxides of the transition elements by the flame fusion method—2459(L)
Scott, Robert L. (see Benninga, Harm)—1911
Scott, William T. Theory of the Faradaic admittance. III. Application of diffusion theory to current-interrupter studies—1936
Searcy, Alan W. and Robert D. Freeman. Measurement of the molecular weights of vapors at high temperature. II. The vapor pressure of germanium and the molecular weight of germanium vapor—88
Sears, Gerald W. Screw dislocations in growth from the melt—1630
—— Viscosity anomaly of supercooled liquids—604(L)
Sears, Paul G., Eugene D. Wilhoit, and Lyle R. Dawson. Conductances of trimethylphenylammonium chloride and iodide in water and in dimethylformamide at 25°C—1274
Secco, E. A. Dissociation of water vapor in electric discharge—1734(L)
—— **and W. J. Moore.** Diffusion of zinc in crystalline zinc oxide—1170(L)
Seehof, Jerrold M. and Hans J. Trurnit. Effect of sorbed water vapor upon the electrical conductivity of conditioned chromium films—2459(L)
Seely, Gilbert R. and Melvin Calvin. Photochemical studies of the porphyrins. III. Photoreduction of a porphyrin by benzoin—1068
Segall, Herbert and J. G. Aston. Study of nuclear resonance of the supercooled rotational transition of 2,3-dimethylbutane—528
Sehon, A. H. and B. deB. Darwent. Reactions of $Hg(^3P_1)$ with toluene—822
Seibold, E. A. and L. E. Sutton. Structure of ferrocene—1967(L)
Seki, Syûzô (see Tadokoro, Hiroyuki)—1351(L)
Senett, William P., Fred Gollob, and T. I. Taylor. Binary diffusion of similar or isotopic molecules in three component systems—1679
Sette, Daniele, A. Busala, and J. C. Hubbard. Energy transfer by collisions in vapors of chlorinated methanes—787
—— (see Griffing, Virginia)—503
Sharman, L. J. and K. J. McCallum. Effect of pile irradiation on sodium chlorate—597(L)
Shaw, J. H. (see Lakshmi, K.)—1887
Shemilt, L. W. (see Dudley, R. S.)—585(L)
—— (see Singh, R.)—1370(L)
Sheppard, N. and D. M. Simpson. Correlations between characteristic frequencies of the paraffins and the skeletal frequencies of some structurally analogous polar molecules—582
—— (see Dixon, R. N.)—215(L)
—— (see Yates, D. J. C.)—1980(L)
Sheridan, W. F. (see Dillon, J. A., Jr.)—776
Sherman, Robert H. (see Polo, Santiago R.)—833

Shields, Howard (see Ard, William B.)—1727(L)
Shimanouchi, Takehiko. On the calculation of the characteristic values and vectors for vibrational secular equations—2465(L)
—— **and San-ichiro Mizushima.** On the helical configuration of a polymer chain—707
Shimauchi, A. (see Kojima, S.)—1963(L)
Shimizu, Kazuhiro (see Murata, Hiromu)—1968(L)
Shimoda, Koichi (see Nishikawa, Tetsuji)—1735(L)
Shionoya, Shigeo. Sensitized luminescence of zinc sulfide phosphors activated with copper and manganese—1173(L)
—— Thermoluminescence of zinc sulfide phosphors doubly activated with copper and manganese—1976(L)
Shoolery, James N. and Berni J. Alder. Nuclear magnetic resonance in concentrated aqueous electrolytes—805
—— (see Huggins, Charles M.)—1244
Shostak, Arnold. Interaction energy among three helium atoms—1808
Shull, Harrison and Per-Olov Löwdin. Natural spin orbitals for helium—1565(L)
—— **and Per-Olov Löwdin.** Role of the continuum in superposition of configurations—1362(L)
—— (see Ellison, Frank O.)—2348
—— (see Goodman, Lionel)—33
Shurgan, Joel (see Ginell, Robert)—964, 1356(L)
Sidei, Tunahiko and Syukuro Yano. Hindered rotation of water molecules of hydration in $Mg(H_2O)_6Cl_2$ and $Mg(H_2O)_6Br_2$—1554(L)
Sidman, Jerome W. Vibrational analysis of the emission spectrum of coronene as a forbidden transition—1365(L)
Simmons, J. W. (see Fine, J.)—601(L)
—— (see Kwak, Nowhan)—2450(L)
Simnad, M. and R. Smoluchowski. Effect of proton irradiation upon the rate of solution of Fe_2O_3 in hydrochloric acid—1961(L)
—— (see Yang, Ling)—1295
Simons, J. H. and W. H. Wilson. Surface tension and viscosity of liquids—613
Simpson, D. M. (see Sheppard, N.)—582
Simpson, William T. (see Albrecht, Andreas C.)—1480
—— (see Braunstein, Jerry)—174, 176
—— (see Nelson, Richard C.)—1146
Sinfelt, J. H. and H. G. Drickamer. Resistance in a liquid-liquid interface. III. The effect of molecular properties—1095
Singer, L. S. Paramagnetic resonance absorption in some Cr^{+3} complexes—379
—— **and C. Kikuchi.** Paramagnetic resonance absorption in single crystals of diphenylpicrylhydrazyl at low temperatures—1738(L)
Singh, R. and L. W. Shemilt. Critical constants of *n*-butanol —1370(L)
Sinha, K. P. and A. B. Biswas. On the theory of photographic process—404(L)
Sirkar, S. C. and G. S. Kastha. Raman spectrum of frozen solution of CS_2 in methyl cyclohexane—2439(L)
——, **Fred L. Voelz, and Forrest F. Cleveland.** Raman and infrared spectra and structure of 2,6-dioxaspiro(3,3)heptane—1684
Sites, J. R. (see Rosenstock, H. M.)—2442(L)
Skochdopole, R. E., Maurice Griffel, and F. H. Spedding. Heat capacity of erbium from 15 to 320°K—2258
Slowinski, Emil J., Jr. New form of molecular potential function for use in molecular vibrational analysis—1933
Smaller, Bernard (see Matheson, Max S.)—521
Smith, R. R. and S. D. Reeder. Activation cross sections of Y^{90} and Pr^{142}—2108
Smith, William V., H. A. Lackner, and A. B. Volkov. Pressure broadening of linear molecules. II. Theory—389; errata—1559(L)
Smithies, D. (see Baxendael, J. H.)—604(L)
Smoluchowski, R. (see Simnad, M.)—1961(L)
Snow, Richard L. (see Barker, Roland S.)—1686
Sohma, Junkichi (see Odajima, Akira)—1959(L)
Solimene, N. and B. P. Dailey. Structure and barrier height of methyl mercaptan from microwave data—124
—— (see Wagner, R. S.)—599(L)
Sone, Kôzô (see Stammreich, H.)—972(L)
Sosnovsky, H. M. C. Effect of crystal orientation on the activation energy for the catalytic decomposition of formic acid on silver—1486
Spedding, F. H. (see Skochdopole, R. E.)—2258
Spence, R. D. Proton resonance in barium chlorate monohydrate—1166(L)
—— (see Jain, P. L.)—878
Spindel, W. and T. I. Taylor. Concentration of nitrogen-15 by chemical exchange in a thermal diffusion column—1318
—— **and T. I. Taylor.** Separation of nitrogen isotopes by chemical exchange between NO and HNO_3—981(L)
Spinks, J. W. T. (see Cormack, D. V.)—162
Sponer, H. and C. D. Cooper. Vapor absorption spectra of light and heavy naphthalenes at 2900–2500A—646
Srinivasan, R. (see Benson, Sidney W.)—200
Srivastava, B. N. (see Saxena, S. C.)—1571
Stamm, Robert F. and Peter A. Button. Rayleigh's ratio (absolute turbidity levels) for benzene and carbon tetrachloride. II. Corrections—2456(L)
Stammreich, H., Roberto Forneris, and Kôzô Sone. Raman spectrum of sulfur dichloride—972(L)
Staveley, L. A. K. (see Mathot, V.)—1551(L)
Steacie, E. W. R. (see Farmer, J. B.)—1169(L)
Steele, W. A. and J. G. Aston. Heats of absorption on a prepared uniform surface—1547(L)
Stein, Richard S. Interaction of methylene deformation frequencies in paraffin crystals II. A theoretical treatment of the interaction of vibrations—734
—— (see Volungis, Richard J.)—1179(L)
Stephenson, C. C., D. W. Rice, and W. H. Stockmayer. Order-disorder transitions in the alkali borohydrides—1960 (L)
Sternheim, G. (see Piontelli, R.)—1358(L), 1971(L)
Sterzer, Fred. Erratum: $J = 0 \rightarrow 1$ rotational transition of trifluoroiodomethane—762(L)
Stevenson, D. P. Heat of chemisorption of hydrogen in metals—203(L)
—— **and D. O. Schissler.** Rate of the gaseous reactions, $X^+ + YH = XH^+ + Y$—1353(L)
Stewart, James E. Infrared absorption spectrum of *N*-dimethylaminodiborane between 15 and 40 microns—2204 (L)
—— Use of partially oriented solid samples and unpolarized radiant energy in the analysis of infrared absorption spectra—986(L)
Stockmayer, W. H. (see Stephenson, C. C.)—1960(L)
Stokes, Suzanne and Lucy W. Pickett. Absorption of bicycloheptane and bicycloheptene in the vacuum ultraviolet—258
Stout, J. W. and Edward Catalano. Heat capacity of zinc fluoride from 11 to 300°K. Thermodynamic functions of zinc fluoride. Entropy and heat capacity associated with the antiferromagnetic ordering of manganous fluoride, ferrous fluoride, cobaltous fluoride, and nickelous fluoride—2013
—— (see Catalano, Edward)—1284, 1803
Straley, Joseph W. Vibrational intensities in halogenated methanes. I. Methylene chloride—2183
—— (see Wingfield, Edward C.)—731
Streetman, J. R. Evaluation of certain three-center integrals —1348(L)

Strehlow, Roger A. Method of extrapolating equation-of-state data to higher temperatures—1562(L)
Stuart, Alexander Verrijn. On the structure of ethylene—1726(L)
Sucov, Eugene (see Kallmann, Hartmut)—1043
Sugai, Shintaro and Jiro Furuichi. On diffusion of radioactive ions in ion exchangers—1181(L)
Sun, H. and G. L. Weissler. Absorption coefficients of nitric oxide in the vacuum ultraviolet—1372(L)
—— **and G. L. Weissler.** Absorption cross sections of carbon dioxide and carbon monoxide in the vacuum ultraviolet—1625
—— **and G. L. Weissler.** Absorption cross sections of methane and ammonia in the vacuum ultraviolet—1160
Sundaram, S. (see Venkateswarlu, K.)—2365, 2368
Sutton, L. E. (see Seibold, E. A.)—1967(L)
Swalen, Jerome D. Structure and potential barrier to hindered rotation in methyl alcohol—1739(L)
Swegler, E. W. (see Weisz, P. B.)—1567
Swenson, C. A. New modification of solid nitrogen—1963(L)
Swenson, R. W. (see Havriliak, S.)—134
Swick, D. A. and I. L. Karle. Structure and internal motion of C_2F_6 and Si_2Cl_6 vapors—1499
Szasz, G. J. Stereochemical consequences of intramolecular attractive forces—2449(L)
Szwarc, M. Singlet-triplet excitation energy of aromatic compounds and their reactivities—204(L)
—— **and J. Watson Taylor.** Pyrolysis of acetone and the heat of formation of acetyl radicals—2310
—— (see Luner, C.)—1978(L)
—— (see Rembaum, A.)—909

Tabuchi, Daisaku. Dispersion and absorption of sound in imperfect gases in general chemical equilibrium and its application to chemical kinetics—2033
Tadokoro, Hiroyuki, Syûzô Seki, and Isamu Nitta. Infrared absorption spectrum of deuterated polyvinyl alcohol film—1351(L)
Talât-Erben, M. Displacement of the maximum in the concentration-time diagram of two first-order consecutive reactions—2445(L)
Tamres, Milton (see Bernstein, Richard B.)—2201(L)
Tamura, Mikio (see Kurata, Michio)—991
Tanaka, Ikuzo and Chimao Komatsu. Ionization potential of benzyl radical—976(L)
Tapley, J. G. (see Bennett, J. E.)—215(L)
Tarte, P. Some remarks on the spectra of nitrites and nitrosamines—979(L)
Taylor, Ellison H. and Sheldon Datz. Study of chemical reaction mechanisms with molecular beams. The reaction of K with HBr—1711
Taylor, H. Austin (see Bromberg, Marvin L.)—2399
—— (see Burwasser, Herman)—2295
Taylor, J. Watson (see Szwarc, M.)—2310
Taylor, R. Dean, B. H. Johnson, and John E. Kilpatrick. Entropy, heat capacity, and heats of transition of 1,2,3-trimethylbenzene—1225
—— **and John E. Kilpatrick.** Entropy, heat capacity, and heats of transition of 1,3,5-trimethylbenzene—1232
Taylor, T. I. (see Senett, William P.)—1679
—— (see Spindel, W.)—981(L), 1318
Templeton, David H. Prediction of Madelung constants—1826
—— Rate of convergence of Madelung series by the method of Bertaut—1629
Theilacker, W. (see Kortüm, G.)—1723(L)
Thomas, Henry C. (see Gaines, George L., Jr.)—2322
Thomas, Lloyd B. and E. B. Schofield. Thermal accommodation coefficient of helium on a bare tungsten surface—861
Thomas, P. J. (see Maccoll, Allan)—1722(L)
Thomassen, L. (see Grimes, D. M.)—2205(L)
Thompson, S. O. and O. A. Schaeffer. Radiation induced equilibrium of hydrogen-deuterium mixtures—759(L)
Thomsen, S. Milton (see Bube, Richard H.)—15
Thorn, R. J. and G. H. Winslow. Rate of evaporation of graphite—1369(L)
—— **and G. H. Winslow.** Transmissivity of thin carbon films—1729(L)
Thorne, Charles J. (see Barker, Roland S.)—1381
Tidwell, Eugene D. (see Allen, Harry C., Jr.)—1356(L)
Tietz, T. Comparison of the approximate solutions for free neutral atoms—1167(L)
—— Note on the atom form factor calculated from the Thomas-Fermi model—1565(L)
—— Reply to Brinkman's Letter: Concerning my Letter "Approximate analytic solution of the Thomas-Fermi equation for atoms"—1560(L)
Tobin, Marvin C. Selection rules for normal modes of chain molecules—891
Toennies, J. P. and E. F. Greene. Dissociation of nitrogen in shock waves—1366(L)
Tolbert, B. M. (see Weaver, H. E.)—1956(L)
Tompkins, F. C. (see Jacobs, P. W. M.)—1445
Townes, C. H. (see Dailey, B. P.)—118
Trischka, J. W. (see Kastner, S. O.)—1730(L)
Trumbore, Conrad N. (see Miller, Warren W.)—2457(L)
Trurnit, Hans J. (see Seehof, Jerrold M.)—2459(L)
Tsubomura, Hiroshi. Nature of the hydrogen bond. II. The effect of hydrogen bonding and other solute-solvent interactions upon the shape and intensity of the infrared OH band of phenol—2130
Tsuchida, Ryutaro (see Fujita, Junnosuke)—1541(L)
Tsujimura, A. (see Kôi, Y.)—1346(L)
Tsukada, K. (see Kojima, S.)—1963(L)
Tunnicliff, D. D. (see McConnell, H. M.)—927
Tuomi, D. (see Candidus, E. S.)—588(L)
Tuomikoski, P. On the Fermi resonance and isotope effect in the infrared spectrum of carbon tetrachloride—2083
Turkevich, John (see Pastor, Ricardo C.)—1731(L)
Turner, T. E., Verna C. Fiora, and W. M. Kendrick. Microwave spectrum of imine-deuterated ethylenimine—1966(L)
Tykodi, R. J. (see Aston, J. G.)—1633

Urushibara, Yoshiyuki, Fujiro Iimura, and Kenro Ikeda. Erratum: Polymorphism in solution of *cis-* and *trans-β*-methoxy-*p*-nitrochalcone—759(L)
——, **F. Iimura, and K. Ikeda.** On the coincidence of fusion points in the polymorphs of dibenzoylmethane and of its enol-ethers—1724(L)

Vanderslice, Joseph T. (see Griffing, Virginia)—1035, 1039
van der Venne, M. J. (see Coekelbergs, R.)—1731(L)
van Dranen, Johan. Heat of evaporation of helium—213(L)
—— Properties of substances at the critical point—218(L)
Van Uitert, L. G. dc resistivity in the nickel and nickel zinc ferrite system—1883
Varney, R. N. Reactions of nitrogen activated by electric discharge—866
Venkataraman, Balu and George K. Fraenkel. Paramagnetic resonance of methyl substituted *p*-benzosemiquinones—588(L)
Venkateswarlu, K. and S. Sundaram. Evaluation of force constants from Raman effect data. Part 1. Molecules and radicals of the type XY_4—2365

—— **and S. Sundaram.** Evaluation of force constants from Raman effect data. Part 2. Molecules and radicals of the planar XY_3 type—2368
Venkateswarlu, Putcha, Howard D. Edwards, and Walter Gordy. Methyl alcohol. I. Microwave spectrum—1195
—— **and Walter Gordy.** Methyl alcohol. II. Molecular structure—1200
Verma, G. S. Ultrasonic absorption in sugar solutions—876
Vines, R. G. (see Bennett, L. A.)—1587
Vinogradov, Serge N. and Robert H. Linnell. System pyridine-pyrrole and the association of pyrrole—93
Vivo, Juana L. (see Wertz, John E.)—2193(L), 2194(L), 2441(L)
Voelz, Fred L. (see Palm, Ann)—726
—— (see Polo, Santiago R.)—833
—— (see Sirkar, S. C.)—1684
Volkov, A. B. (see Smith, William V.)—389; errata—1559(L)
Volman, David H. Hydrogen peroxide photocatalyzed reaction of hydrogen and oxygen—2458(L)
Volungis, Richard J. and Richard S. Stein. Temperature dependency of the statistical segment size of polyethylene—1179(L)

Waddington, Guy (see Douslin, D. R.)—2453(L)
Waelbroeck, F. G. Virial coefficients of benzene-cyclohexane mixtures, and theories of liquid solutions—749(L)
Wagener, J. C. S. Reduction of alkaline earth oxides by methane—204(L)
Wagner, R. S. and B. P. Dailey. Proof of the staggered configuration of ethyl chloride—1355(L)
——, **N. Solimene, and B. P. Dailey.** Microwave spectrum of ethyl bromide—599(L)
Wahrhaftig, A. L. (see Rosenstock, H. M.)—2200(L)
Wait, Samuel C., Jr. (see Janz, George J.)—1550(L)
Wakeshima, Hiromu. Errata: Time lag in the self-nucleation—763(L)
Walker, W. C. and G. L. Weissler. Photoionization efficiencies and cross sections in NH_3—1540(L)
—— **and G. L. Weissler.** Photoionization efficiencies and cross sections in N_2O and NO—1962(L)
—— **and G. L. Weissler.** Preliminary data on photoionization efficiencies and cross sections in C_2H_4 and C_2H_2—1547(L)
Wall, F. T., L. A. Hiller, Jr., and W. F. Atchison. Statistical computation of mean dimensions of macromolecules. II—913
——, **L. A. Hiller, Jr., and W. F. Atchison.** Statistical computation of mean dimensions of macromolecules. III—2314
Wallace, W. E. Bonding in the zinc family metals—2281
Wallis, Richard F. Molecular orbitals for the hydrogen molecule ground state—1256
—— (see Herman, Robert)—637
Walter, Robert I. (see Gilliam, O. R.)—1540(L)
Walton, J. R. (see Rosenstock, H. M.)—2442(L)
Wanchoo, V. N. (see Katti, P. K.)—760(L)
Watari, Tatsuro (see Kurata, Michio)—991
Watts, H., B. J. Alder, and J. H. Hildebrand. Self-diffusion of carbon tetrachloride, isobars, and isochores—659
Weaver, H. E., B. M. Tolbert, and R. C. La Force. Observation of chemical shifts of O^{17} nuclei in various chemical environments—1956(L)
Webb, W. (see Cutler, W. G.)—2466(L)
Weber, Alfons and Salvador M. Ferigle. Calculation of depolarization factors of the Raman lines of CCl_3X molecules—2207
—— **and Salvador M. Ferigle.** Normal coordinate treatment of dimethyldiacetylene—579
—— (see Miller, Sidney I.)—44
Wedaa, Henry W. (see Bennett, Arthur L.)—1359(L)
Wehner, J. F. (see Griffing, Virginia)—1024
Weinberg, Irving and John R. Zimmerman. Concentration dependence of chemical exchange and NMR multiplet structure in water-ethanol mixtures—748(L)
Weinstock, Bernard (see Malm, John G.)—2192(L)
Weisbaum, Samuel, Yardley Beers, and Gabriel Herrmann. Low-frequency rotational spectrum of HDO—1601
Weissler, G. L. (see Sun, H.)—1160, 1372(L), 1625
—— (see Walker, W. C.)—1540(L), 1547(L), 1962(L)
Weissman, Herman B., Richard B. Bernstein, Shirley E. Rosser, Arnold G. Meister, and Forrest F. Cleveland. Substituted methanes. XXIII. Infrared spectral data, rotational constants, normal coordinate treatments, and thermodynamic properties for CD_3Br and CH_3Br—544
Weisz, P. B., C. D. Prater, and K. D. Rittenhouse. Electrical conductivity of hydrocarbon cracking catalyst—1965(L)
—— **and E. W. Swegler.** Catalytic activity induced by neutron irradiation of inert silica—1567
Wertz, John E., C. F. Koelsch, and Juana L. Vivo. Reexamination of two free radicals—2194(L)
—— **and Juana L. Vivo.** Electron spin resonance of semiquinones—2441(L)
—— **and Juana L. Vivo.** Multiple thioradicals in sulfuric acid solution—2193(L)
West, C. D. Crystallographic formalism IB: Reply to Nowacki's Letter "The number of x-ray diffraction groups"—1172(L)
West, E. J. (see Liebson, S. H.)—977(L)
Weston, Ralph E., Jr. Tritium isotope effect in the isomerization of cyclopropane—988(L)
Whalley, E. and W. G. Schneider. Intermolecular potentials of argon, krypton, and xenon—1644
Wheatley, P. J. (see Atoji, Masao)—1176(L)
Wheland, G. W. Modified valence-bond treatment of unsaturated and aromatic compounds—79
White, Howard J., Jr. Thermodynamics of sorption by solids under finite strain with particular reference to fibers—1491
White, J. R. Diffusion coefficients of fatty acids and monobasic phosphoric acids in *n*-decane—2247
White, Robert L. Nuclear quadrupole interaction in HCN and DCN in the bending vibrational mode—249
—— Quadrupole coupling of the deuteron in DCCCl and DCN—253
Whitney, R. B. and Melvin Calvin. Chemical and photochemical studies on 6,8-thioctic acid and 1,2-dithiolane (trimethylene disulfide)—1750
Whittle, Eric (see Dows, David A.)—499, 1475, 1606
Widom, B. On the energy dependence of inelastic molecular collision probabilities—2377
—— On the structure of the configuration integral in the statistical mechanics of pure fluids—560
—— **and O. K. Rice.** Critical isotherm and the equation of state of liquid-vapor systems—1250
Wijnen, M. H. J. Reaction of methyl radicals with methane and ethane—1357(L)
Wilhoit, Eugene D. (see Sears, Paul G.)—1274
Wilkinson, P. G. and R. S. Mulliken. Far ultraviolet absorption spectra of ethylene and ethylene-d_4—1895
Williams, Dale G., Willis B. Person, and Bryce Crawford, Jr. Vibrational intensities. IV. Bond moments in C_2F_6—179
Williams, G. H. (see Hey, D. H.)—757(L)
Williams, R. (see Kistiakowsky, G. B.)—334
Williams, Russell R., Jr. (see Zubler, Edward G.)—1263
Williamson, Pierce M. (see Harter, H. Leon)—1966(L)

Wilmshurst, K. J. Vibrational assignment for sodium acetate—2463(L)
Wilson, E. Bright, Jr., Chun Chia Lin, and David R. Lide, Jr. Calculation of energy levels for internal torsion and over-all rotation. I. CH_3BF_2 type molecules—136
Wilson, M. Kent (see O'Loane, J. Kenneth)—1313
—— (see Polo, S. R.)—2376
Wilson, W. H. (see Simons, J. H.)—613
Wingfield, Edward C. and Joseph W. Straley. Measurement of bond moments in C_2H_2 and C_2D_2 from infrared intensities—731
Winslow, G. H. (see Thorn, R. J.)—1369(L), 1729(L)
Wise, Henry and Maurice F. Frech. Errata: Kinetics of oxidation of ammonia by nitric oxide—1374(L)
—— (see Lorell, Jack)—1928
—— (see Wood, Bernard J.)—693
Wolfsberg, Max. Dipole velocity and dipole length matrix elements in π electron systems and configuration interaction—793
—— (see Bigeleisen, Jacob)—1535
—— (see Helmholz, Lindsay)—853
Wolovsky, Reuven (see Fischer, Ernst)—1367(L)
Wood, Bernard J. and Henry Wise. Acid catalysis in the thermal decomposition of ammonium nitrate—693
Wood, James M., Jr. (see Bender, Paul)—1316
Wood, Scott E. Phenomenological relations of electro-osmosis in paper electrochromatography—1881
Woollett, A. H. (see Nielsen, J. Rud)—1994
Wortman, R. (see Gomer, R.)—1741(L)
Wray, John L. (see Zeller, Edward J.)—2187(L)
Wrinch, Dorothy. Vector distributions and crystalline proteins—1361(L)

Yang, Ling and M. Simnad. Self-diffusion of ions in molten electrolyte under the influence of an electric field—1295
Yano, Syukuro (see Sidei, Tunahiko)—1554(L)
Yarger, Frederick L. (see Christian, Russell H.)—2042, 2045
Yasumori, Iwao. Modified bond-eigenfunction method of calculating potential energy surfaces and its application to the reaction $H + H_2 \rightarrow H_2 + H$—1566(L)
—— **and Kenji Fueki.** Erratum: A quantum-mechanical equation of reaction rates—398(L)
Yates, D. J. C., N. Sheppard, and C. L. Angell. Infrared spectrum of ammonia adsorbed on porous silica glass—1980(L)
Yoshinaga, Hiroshi. Absorption bands of CCl_4 in the far infrared region—2206(L)
Yoshino, Tsuneo. Dynamic equilibrium of inverted isomers in a crystalline phase—1974(L)
—— Infrared study of the adsorption on silica gel—1564(L)
Yoshizumi, Hiroyuki and Takashi Itoh. Applications of the alternant molecular orbital method to six- and four-electron systems—412(L)
Yost, Don M. (see Ramsey, William J.)—2153
Young, D. J. (see Satten, R. A.)—404(L)
Young, D. M. (see Dacey, J. R.)—1302
Young, J. A. (see Mathot, V.)—1551(L)
Yousef, Y. L., R. K. Girgis, and H. Mikhail. Measurement of the magnetic susceptibility of manganese nitride Mn_5N_2 by a microvibration method—959

Zeller, Edward J., John L. Wray, and Farrington Daniels. Thermoluminescence induced by pressure and by crystallization—2187(L)
Zimmerman, George. Photochemical decomposition of aqueous permanganate ion—825
Zimmerman, John R. (see Weinberg, Irving)—748(L)
Zinman, Walter G. (see Kistiakowsky, G. B.)—1889
Zubler, Edward G., William H. Hamill, and Russell R. Williams, Jr. Ion pair yields in the x-ray decomposition of hydrogen bromide in rare gas atmospheres—1263
Zwanzig, Robert W. High-temperature equation of state by a perturbation method. II. Polar gases—1915
—— (see Kirkwood, John G.)—213(L)
Zwerdling, Solomon and Ralph S. Halford. Direct production of spectroscopic specimens from single crystals by controlled growth from a vapor—2215
—— **and Ralph S. Halford.** Motions of molecules in condensed systems. IX. Infrared absorption anisotropy and induced molecular motion in a single crystal of benzene—2221

THE JOURNAL OF CHEMICAL PHYSICS VOLUME 23, NUMBER 12 DECEMBER, 1955

Analytic Subject Index to Volume 23

(References with (L) are to Letters to the Editor)

Absorption Spectra

Absence of hydrogen bonding in an alcohol-fluorohydrocarbon system, R. S. McDonald, J. H. Gibbs, and J. R. Ladd—1170(L)
Absorption bands of CCl_4 in the far infrared region, Hiroshi Yoshinaga—2206(L)
Absorption bands of N_2O near 4.5μ, K. Lakshmi and J. H. Shaw—1887
Absorption coefficients of nitric oxide in the vacuum ultraviolet, H. Sun and G. L. Weissler—1372(L)
Absorption cross sections of carbon dioxide and carbon monoxide in the vacuum ultraviolet, H. Sun and G. L. Weissler—1625
Absorption cross sections of methane and ammonia in the vacuum ultraviolet, H. Sun and G. L. Weissler—1160
Absorption of bicycloheptane and bicycloheptene in the vacuum ultraviolet, Suzanne Stokes and Lucy W. Pickett—258
Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. I. Iodine, Dennis F. Evans—1424
Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. II. Bromine, Dennis F. Evans—1426
Absorption spectra of lanthanide and actinide ions, Chr. Klixbull Jørgensen, 399(L)
Absorption spectra of luminescent thallous chloride solutions, Allen B. Scott and Kuo-Hao Hu—1830
Absorption spectrum and quantum states of the praseodymium ion. I. Single crystals of praseodymium chloride, Edward V. Sayre, Kenneth M. Sancier, and Simon Freed—2060
Absorption spectrum and quantum states of the praseodymium ion. II. Anhydrous praseodymium fluoride in films, Edward V. Sayre and Simon Freed—2066
Absorption spectrum of $NaNO_3$ exposed to ionizing radiation, P. Pringsheim—369

Absorption Spectra (continued)
Absorption spectrum of polyethylene in the near infrared, Kurt Rossmann—1355(L)
Analysis of the near ultraviolet absorption spectra of *ortho-* and *para*-dichlorobenzene vapors, Tosinobu Anno and Ikuo Matubara—796
Analysis of the 6140 cm^{-1} band of HDS, Glenn A. Crosby, Edward J. Bair, and Paul C. Cross—1660
Anomalous infrared intensity in ethylene, D. F. Eggers, Jr.—221(L)
Asymmetric rotor. XII. The infrared spectrum of hydrogen sulfide from 7480 to 7880 cm^{-1}, Girard L. Ordway, Paul C. Cross, and Edward J. Bair—541
Band widths in the spectra of manganous and other transition-metal complexes, L. E. Orgel—1824
Barrier hindering internal rotation in methylamine, J. G. Aston and Frank L. Gittler—211(L)
Calculated fundamental vibrational frequencies for bromosilanes, Hiromu Murata and Kiyoyasu Kawai—2451(L)
Color centers in smoky quartz, Alvin J. Cohen—589(L)
Color centers in alkali halides containing NO_2^- ions in small concentration, E. Hutchinson and P. Pringsheim —1113
Comment on "color centers in smoky quartz," George W. Arnold, Jr.—590(L)
Concentration dependence of solvent shift in the C − H (and C − D) stretching frequencies of chloroform and pentachloroethane, Richard B. Bernstein and Milton Tamres—2201(L)
Concerning hydrogen positions in aquo complexes—$CuCl_2 \cdot 2H_2O$, R. E. Rundle, Kazuo Nakamoto, and James W. Richardson—2450(L)
Correlations between characteristic frequencies of the paraffins and the skeletal frequencies of some structurally analogous polar molecules, N. Sheppard and D. M. Simpson (Mrs. J. N. Agar)—582
Coupling of the out-of-plane bending mode in nitrates and carbonates of the aragonite structure, J. C. Decius—1290
Determination of absolute intensities from single- and multiple-path absorption measurements, S. S. Penner and H. Aroeste—2244
Direct production of spectroscopic specimens from single crystals by controlled growth from a vapor, Solomon Zwerdling and Ralph S. Halford—2215
Dynamic equilibrium of inverted isomers in a crystalline phase, Tsuneo Yoshino—1947(L)
Effect of a high *cis*-barrier on the microwave spectrum of hydrogen peroxide, J. T. Massey and Robert W. Hart—942
Effect of Fermi resonance on the centrifugal stretching constants in CO_2, C. P. Courtoy and G. Herzberg—975(L)
Electronic spectrum of the cycloheptatrienyl (Tropylium) ion, J. N. Murrell and H. C. Longuet-Higgins—2347
Electronic states of the naphthalene crystal, Donald S. McClure and Otto Schnepp—1575
Electronic structure and electronic spectra of ethylene-like molecules, Robert G. Parr and Rudolph Pariser—711
Excited triplet states of polyatomic molecules. II. Flash-lamp studies on aromatic ketones, Donald S. McClure and Phillip L. Hanst—1772
Experimental evidence for the existence of abnormal OH rotational "temperatures" in low-pressure flames, Herbert P. Broida and Henry J. Kostkowski—754(L)
Far ultraviolet absorption spectra of ethylene and ethylene-d_4, P. G. Wilkinson and R. S. Mulliken—1895
Fermi resonance and isotope effect in the infrared spectrum of carbon tetrachloride, P. Tuomikoski—2083
Fine structure of the 2.7 microncarbon dioxide rotation-vibration band, W. L. France and F. P. Dickey—471
Force constants, infrared spectrum, and thermodynamic properties of $TiCl_4$, N. J. Hawkins and D. R. Carpenter —1700
Frequency shift of the CO stretching band in polypeptides and proteins, Samuel Krimm—1371(L)
Further observations on color center precursors, M. Hacskaylo and P. Schwed—1362(L)
Further remarks on the spectra of nitrites and nitrosamines, R. N. Haszeldine and J. Jander—979(L)
Impurity induced color centers in fused silica, Alvin J. Cohen—765(L)
Influence of vibration-rotation interaction on line intensities in vibration-rotation bands of diatomic molecules, Robert Herman and Richard F. Wallis—637
Infrared absorption spectra of inorganic coordination complexes. III. Deformation frequencies of the NH_3 ligand, San-ichiro Mizushima, Ichiro Nakagawa, and J. V. Quagliano—1367(L)
Infrared absorption spectra of monodeuterated pyridines, F. Allan Andersen, Børge Bak, Svend Brodersen, and John Rastrup-Andersen—1047
Infrared absorption spectrum of deuterated polyvinyl alcohol film, Hiroyuki Tadokoro, Syûzô Seki, and Isamu Nitta—1351(L)
Infrared adsorption spectra of hexammine metals complexes, Masahisa Kobayashi and Junnosuke Fujita—1354(L)
Infrared and Raman spectra of dicyanoacetylene. II., Foil A. Miller, Roy B. Hannan, Jr., and Lauren R. Cousins —2127
Infrared and Raman spectra of fluorinated ethylenes. VI. Fluorotrichloroethylene, J. Rud Nielsen, C. W. Gullikson, and A. H. Woollett—1994
Infrared and Raman spectra of fluorinated ethanes. VIII. Pentafluoroethane, J. Rud Nielsen, Howard H. Claassen, and Norma B. Moran—329
Infrared and Raman spectra of nitrogen trifluoride, E. L. Pace and Louis Pierce—1248
Infrared and Raman spectra of 1,1,2,2-tetrachloroethane; calculation of normal vibrations, Kazuo Naito, Ichiro Nakagawa, Kenji Kuratani, Isao Ichishima, and San-ichiro Mizushima—1907
Infrared emission and absorption in an ammonia-oxygen diffusion flame, David A. Dows, Eric Whittle, and George C. Pimentel—499
Infrared intensities and bond moments in formaldehyde, L. C. Hisatsune and D. F. Eggers, Jr.—487
Infrared intensities in liquid and gas phases, S. R. Polo and M. Kent Wilson—2376
Infrared intensity of the C-D stretch of chloroform-*d* in various solvents, Charles M. Huggins and George C. Pimentel—896
Infrared investigation of the benzene-chlorine molecular complex, J. Collin and L. D'Or—397(L)
Infrared spectra and structure of NaOH and NaOD, William R. Busing—933
Infrared spectra and structure of the crystalline sodium acetate complexes of U(VI), Np(VI), Pu(VI), and Am(VI). A comparison of metal-oxygen bond distance and bond force constant in this series, Llewellyn H. Jones—2105
Infrared spectra of gaseous and solid hydrozoic acid and deutero-hydrazoic acid: the thermodynamic properties of HN_3, David A. Dows and George C. Pimentel—1258
Infrared spectra of intermediate species in the formation of ammonium azide from hydrazoic acid, David A. Dows, George C. Pimentel, and Eric Whittle—1606

Infrared spectra of liquid anhydrous hydrogen fluoride, liquid sulfur dioxide, and hydrogen fluoride-sulfur dioxide solutions, Robert H. Maybury, Sheffield Gordon, and Joseph J. Katz—1277

Infrared spectra of NpF_6 and PuF_6, John G. Malm, Bernard Weinstock, and Howard H. Claassen—2192(L)

Infrared spectra of oxonium halides and the structure of the oxonium ion, C. C. Ferriso and D. F. Hornig—1464

Infrared spectra of SiO_2 from 400 to 600 cm^{-1}, J. Reitzel—2407

Infrared spectrum and molecular constants of CD_4, Hoyt M. Kaylor and Alvin H. Nielsen—2139

Infrared spectrum and molecular structure of succinonitrile, George J. Janz and William E. Fitzgerald—1973(L)

Infrared spectrum and structure of collagen, G. N. Ramachandran—600(L)

Infrared spectrum and the structure of the low-temperature phases of crystalline HCl, HBr, and HI, D. F. Hornig and W. E. Osberg—662

Infrared spectrum of ammonia adsorbed on porous silica glass, D. J. C. Yates, N. Sheppard, and C. L. Angell—1980(L)

Infrared spectrum of iridium hexafluoride, H. C. Mattraw, N. J. Hawkins, D. R. Carpenter, and W. W. Sabol—985(L)

Infrared spectrum of LiH, William Klemperer—2452(L)

Infrared spectrum of $Ni(CO)_4$ vapor, Llewellyn H. Jones—2448(L)

Infrared spectrum of plutonium hexafluoride, N. J. Hawkins, H. C. Mattraw, and W. W. Sabol—2191(L)

Infrared spectrum of SOF_2, J. Kenneth O'Loane and M. Kent Wilson—1313

Infrared spectrum of solid ammonium azide: a vibrational assignment, David A. Dows, Eric Whittle, and George C. Pimentel—1475

Infrared spectrum of solid *n*-octane-1,1,1,8,8,8-d_6, George C. Pimentel and William A. Klemperer—376

Infrared spectrum of trideuterosilane and the structure of the silane molecule, D. R. J. Boyd—922

Infrared spectrum of two-stage cool flame of diethyl ether, Russell E. Donovan and William G. Agnew—1592

Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947

Infrared studies of naphthalene and naphthalene-d_8, Willis B. Person, George C. Pimentel, and Otto Schnepp—230

Infrared study of the adsorption on silica gel, Tsuneo Yoshino—1563(L)

Internal barrier height of methyl mercaptan, Ralph W. Kilb—1736(L)

Interpretation of the infrared spectrum of a molecular crystal: naphthalene, George C. Pimentel, A. L. McClellan, Willis B. Person, and Otto Schnepp—234

Intramolecular charge transfer spectra observed with some compounds containing the nitro or the carbonyl group, Saburo Nagakura—1441

Intramolecular O − H − O hydrogen bonds in bis-(dimethylglyoximato)-cobalt (III)-complexes, Junnosuke Fujita, Akitsuga Nakahara, and Ryutaro Tsuchida—1541(L)

Ionization potentials and charge-transfer spectra of substituted benzenes, L. E. Orgel—1352(L)

Lowest triplet levels of the plyacenes, S. P. McGlynn, M. R. Padhye, and M. Kasha—593(L)

Low-frequency rotational spectrum of HDO, Samuel Weisbaum, Yardley Beers, and Gabriel Herrmann—1601

Low resolution electronic spectrum of crystalline *para*-dimethoxybenzene with application to benzene, Andreas C. Albrecht and William T. Simpson—1480

Low resolution electronic spectrum of hexamethylbenzene with application to benzene, Richard C. Nelson and William T. Simpson—1146

Low-temperature absorption spectra of benzene, toluene, and *para*-xylene in the farther ultraviolet region, W. J. Potts, Jr.—73

Low-temperature absorption spectra of selected olefins in the farther ultraviolet region, W. J. Potts, Jr.—65

Measurement of bond moments in C_2H_2 and C_2D from infrared intensities, Edward C. Wingfield and Joseph W. Straley—731

Methyl alcohol. I. Microwave spectrum, Putcha Venkateswarlu, Howard D. Edwards, and Walter Gordy—1195

Methyl alcohol. II. Molecular structure, Putcha Venkateswarlu and Walter Gordy—1200

Microwave spectrum and molecular structure of methylchloroacetylene, C. C. Costain—2037

Microwave spectrum and planarity of formamide, R. J. Kurland—2202(L)

Microwave spectrum and planarity of the ring of trimethylene oxide, Jose Fernandez, Rollie J. Myers and William D. Gwinn—758(L)

Microwave spectrum of cyclopentanone, James H. Burkhalter—1172(L)

Microwave spectrum of cyclopropyl chloride, James P. Friend, Robert F. Schneider, and B. P. Dailey—1557(L)

Microwave spectrum of ethyl bromide, R. S. Wagner, N. Solimene, and B. P. Dailey—599(L)

Microwave spectrum of ethyl fluoride, J. Kraitchman and B. P. Dailey—184

Microwave spectrum of imine-deuterated ethylenimine, T. E. Turner, Verna C. Fiora, and W. M. Kendrick—1966(L)

Microwave spectrum of propiolactone, Nowhan Kwak, J. W. Simmons, and J. H. Goldstein—2450(L)

Microwave spectrum of propiolic aldehyde, John A. Howe and J. H. Goldstein—1223

Microwave spectrum of *s-trans*-acrolein, J. Fine, J. H. Goldstein, and J. W. Simmons—601

Molecular compounds and their spectra. V. Orientation in molecular complexes, R. S. Mulliken—397(L)

Molecular structure and vibrational spectra of ethyl cyanide, Norman E. Duncan and George J. Janz—434

Molecular structure of methylamine from its microwave spectrum, Tetsuji Nishikawa, Takashi Itoh, and Koichi Shimoda—1735(L)

Motions of molecules in condensed systems. IX. Infrared absorption anisotropy and induced molecular motion in a single crystal of benzene, Solomon Zwerdling and Ralph S. Halford—2221

Nature of the hydrogen-bond. II. The effect of hydrogen-bonding and other solute-solvent interactions upon the shape and intensity of the infrared OH band of phenol, Hiroshi Tsubomura—2130

Near infrared spectrum of liquid diborane, Harold C. Beachell and Eugene J. Levy—2168

Near infrared spectrum of nitric oxide, Nathan L. Nichols, C. D. Hause, and R. H. Noble—57

Near ultraviolet absorption spectra of *ortho-*, *meta-*, and *para*-phenylenediamine vapors, Akira Sadô and Tosinobu Anno—1740(L)

Normal coordinate treatment of dimethyldiacetylene, Alfons Weber and Salvador M. Ferigle—579

Note on the absorption spectra of the methyl radical, Jiro Higuchi—2197(L)

Absorption Spectra (continued)
Note on the interaction and configuration in chlorine-benzene complex, Hideo Murakami—1957(L)
Note on the x-band microwave spectrum of heavy water, D. W. Posener—1728(L)
Nuclear quadrupole interaction in HCN and DCN in the bending vibrational mode, Robert L. White—249
Observed n-π^* bands in the ultraviolet absorption solution spectra of amino asymmetric triazines, R. C. Hirt and R. G. Schmitt—600(L)
Perfluoroheptane as a spectroscopic solvent, Dennis F. Evans—1429
Photoionization efficiencies and cross sections in N_2O and NO, W. C. Walker and G. L. Weissler—1962(L)
Polarized spectra of anthracene crystals and Davydov splitting, L. E. Lyons—1973(L)
Pressure broadening of linear molecules. II. Theory, William V. Smith, H. A. Lackner, and A. B. Volkov—389
Production of a blue color in irradiated plastic scintillators, J. H. Pannell and B. Manning—1368(L)
Pure rotational absorption spectrum of hydrogen, J. A. A. Ketelaar, J. P. Colpa, and F. N. Hooge—413(L)
Pure rotational spectra of DBr, HI, and DI in the spectral region between 45 and 170 microns, E. D. Palik—217(L)
Pure rotational spectrum of H_2Se between 50 and 250 cm^{-1}, E. D. Palik—980(L)
Quadrupole coupling of the deuteron in DCCCl and DCN, Robert L. White—253
Raman and infrared spectra and structure of 2,6-dioxaspiro (3,3) heptane, S. C. Sirkar, Fred L. Voelz, and Forrest F. Cleveland—1684
Raman and infrared spectral data and tentative assignments for *cis*- and *trans*-diiodoethylene, Sidney I. Miller, Alfons Weber, and Forrest F. Cleveland—44
Reactor and gamma-ray induced coloring in crystalline quartz and Corning fused silica, Paul W. Levy—764(L)
Regularities in the absorption spectra of halides, Leonard I. Katzin—2055
Remarks on the spectra of nitrites and nitrosamines, P. Tarte—979(L)
Reply to Jørgensen's letter, absorption spectra of lanthanite and actinide ions, Robert A. Satten—400(L)
Report on notation for the spectra of polyatomic molecules—1997
Resolution of ν_{11} (E) of allene at 28μ, K. Narahari Rao and E. D. Palik—2112
Reversible flash-bleaching of chlorophyll, Edwin W. Abrahamson and Henry Linschitz—2198(L)
Selection rules for normal modes of chain molecules, Marvin C. Tobin—891
Simultaneous transitions in liquids. A new kind of molecular spectrum, J. A. A. Ketelaar and F. N. Hooge—1549(L)
Simultaneous vibrational transitions in liquids, J. A. A. Ketelaar and F. N. Hooge—749(L)
Small grating spectrometer for the far infrared region, Earle K. Plyler and Nicolo Acquista—752(L)
Spectra and electronic structure of fluorochromate ion, chromyl chloride, and some related compounds, Lindsay Helmholz, Harry Brennan, and Max Wolfsberg—853
Spectra of transition-metal complexes, L. E. Orgel—1004
Spectroscopic studies of aromatic sulfides and selenides, A. I. Kiss and B. R. Muth—2189(L)
Spectroscopic studies of some aromatic acids with a heteroatom in the side-chain, A. I. Kiss and B. R. Muth—2187(L)
Spectroscopy of gaseous carbonyls: I. Infrared spectra and thermodynamic properties of chromium and molybdenum hexacarbonyls, N. J. Hawkins, H. C. Matraw, W. W. Sabol, and D. R. Carpenter—2422
Spectrum of the carbon monoxide-oxygen explosion. I. The visible spectrum, R. H. Knipe and Alvin S. Gordon—2097
Structure and barrier to internal rotation of formic acid from microwave data, R. G. Lerner, J. P. Friend, and B. P. Dailey—210(L)
Structure and potential barrier to hindered rotation in methyl alcohol, Jerome D. Swalen—1739(L)
Structure of hexamethyldisilane, Hiromu Murata and Kazuhiro Shimizu—1968(L)
Structure of sym-tetrabromoethane, R. E. Kagarise—207(L)
Substituted methanes. XXI. Calculated and observed wave numbers and calculated thermodynamic properties for bromodeuteromethane and bromodideuteromethane, Jerome M. Dowling—700
Substituted methanes. XXII. Infrared spectra of $CHBrF_2$, Ann Palm, Fred L. Voelz, and Arnold G. Meister—726
Substituted methanes. XXIII. Infrared spectral data, rotational constants, normal coordinate treatments and thermodynamic properties for CD_3Br and CH_3Br, Herman B. Weissman, Richard B. Berstein, Shirley E. Rosser, Arnold G. Meister, and Forrest F. Cleveland—544
Substituted methanes. XXVI. Raman and infrared spectral data, assignments, potential constants, and thermodynamic properties for $CHBrCl_2$ and $CDBrCl_2$, Santiago R. Polo, Ann Palm, Fred L. Voelz, Forrest F. Cleveland, Arnold G. Meister, Richard B. Bernstein, and Robert H. Sherman—833
Symmetry of the local crystalline field about rare earth ions in octahydrated sulfate crystals, R. A. Satten and D. J. Young—404(L)
Theoretical evaluation of atomic polarizations of diatomic molecules, A. P. Altshuller—256
Thermochromism and photochromism, Yehuda Hirshberg and Ernst Fischer—1723(L)
Thermochromism and photochromism, G. Kortüm, W. Theilacker, and V. Braun—1723(L)
Ultraviolet absorption spectra of methylnaphthalenes at 77°K, H. M. McConnell and D. D. Tunnicliff—927
Ultraviolet absorption spectrum of benzene in n-hexane at pressures to 6000 bars, W. W. Robertson and F. A. Matsen—2468(L)
Use of partially oriented solid samples and unpolarized radiant energy in the analysis of infrared absorption spectra, James E. Stewart—986(L)
Vapor absorption spectra of light and heavy naphthalenes at 2900–2500 A, H. Sponer and C. D. Cooper—646
Vibrational assignment and thermodynamic properties of naphthalene, A. L. McClellan and George C. Pimentel—245
Vibrational assignment for sodium acetate, J. K. Wilmshurst—2463(L)
Vibrational energy of deuterium cyanide, Harry C. Allen, Jr., Eugene D. Tidwell, and Earle K. Plyler—1356(L)
Vibrational intensities. IV. Bond moments in C_2F_6, Dale G. Williams, Willis B. Person, and Bryce Crawford, Jr.—179
Vibrational intensities. V. BrCl and ICl, Wendell V. F. Brooks and Bryce L. Crawford, Jr.—363
Vibrational intensities in halogenated methanes, I. Methylene chloride, Joseph W. Straley—2183
Vibrational spectra and assignment of naphthalene and naphthalene-d-8, Ellis R. Lippincott and Edward J. O'Reilly, Jr.—238

Vibrational spectra and structure of cyclopropane and cyclopropane-d_6, A. W. Baker and R. C. Lord—1636
Vibrational spectra, force constants, and calculated thermodynamic properties of methyltrifluorosilane, R. L. Collins and J. Rud Nielsen—351
Vibrational spectra of cyclobutforene (hexafluorocyclobutene), J. Rud Nielsen, M. Z. El-Sabban, and Morris Alpert—324
Vibrational spectra of molecules and complex ions in crystals. VIII. The infrared spectrum of a mixed crystal of 1-deutero-ammonia and 2-deutero-ammonia, F. P. Reding and D. F. Hornig—1053
Vibrational spectra of SiH_3Br and SiH_2Br_2, Dana W. Mayo, Herman E. Opitz, and John S. Peake—1344(L)
Vibrational spectrum of 1-fluoro-1-chloroethylene, D. E. Mann, N. Acquista, and Earle K. Plyler—2122
Vibrational spectrum of fluorotrichloroethylene, D. E. Mann and Earle K. Plyler—1989
Vibration-rotation band ν_2 of heavy water vapor, Fred P. Dickey and James M. Hoffman—1718
Vibration-rotation spectrum of silyl iodine, R. N. Dixon and N. Sheppard—215(L)
Infrared of
Allene, K. Narahari Rao and E. D. Palik—2112
Ammonia adsorbed on porous silica glass, D. J. C. Yates, N. Sheppard, and C. L. Angell—1980(L)
Ammonia-oxygen flame, David A. Dows, Eric Whittle, and George C. Pimentel—499
Ammonium azide: a vibrational assignment, David A. Dows, Eric Whittle, and George C. Pimentel—1475
Ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947
Benzene-chlorine molecular complex, J. Collin and L. D'Or—397(L)
Benzene in *n*-hexane, W. W. Robertson and F. A. Matsen—2468(L)
Benzene single crystal, Solomon Zwerdling and Ralph S. Halford—2221
BrCl and ICl, Wendell V. F. Brooks and Bryce L. Crawford, Jr.—363
Bromodeuteromethane and bromodideuteromethane, Jerome M. Dowling—700
Bromosilanes, Hiromu Murata and Kiyoyasu Kawai—2451(L)
Carbon dioxide, W. L. France and F. P. Dickey—471
Carbon tetrachloride, P. Tuomikoski—2083
CCl_4, Hiroshi Yoshinaga—2206(L)
CD_4, Hoyt M. Kaylor and Alvin H. Nielsen—2139
CD_3Br and CH_3Br, Herman B. Weissman, Richard B. Bernstein, Shirley E. Rosser, Arnold G. Meister, and Forrest F. Cleveland—544
C_2F_6, Dale G. Williams, Willis B. Person, and Bryce Crawford, Jr.—179
C_2H_2 and C_2D, Edward C. Wingfield and Joseph W. Straley—731
$CHBrCl_2$ and $CDBrCl_2$, Santiago R. Polo, Ann Palm, Fred L. Voelz, Forrest F. Cleveland, Arnold G. Meister, Richard B. Bernstein, and Robert H. Sherman—833
$CHBrF_2$, Ann Palm, Fred L. Voelz, and Arnold G. Meister—726
Chlorine-benzene complex, Hideo Murakami—1957(L)
Chloroform-*d*, Charles M. Huggins and George C. Pimentel—896
Chloroform and pentachloroethane, Richard B. Bernstein and Milton Tamres—2201(L)
Chromium and molybdenum hexacarbonyls, N. J. Hawkins, H. C. Matraw, W. W. Sabol, and D. R. Carpenter—2422
CO, S. S. Penner and H. Aroeste—2244
CO_2, C. P. Courtoy and G. Herzberg—975(L)
Collagen, G. N. Ramachandran—600(L)
$CuCl_2 \cdot 2H_2O$, R. E. Rundle, Kazuo Nakamoto, and James W. Richardson—2450(L)
Cyclobutforene (hexafluorocyclobutene), J. Rud Nielsen, M. Z. El-Sabban, and Morris Alpert—324
Cyclopropane and cyclopropane-d_6, A. W. Baker and R. C. Lord—1636
DBr, HI, and DI, E. D. Palik—217(L)
Deuterium cyanide, Harry C. Allen, Jr., Eugene D. Tidwell, and Earle K. Plyler—1356(L)
1-Deutero-ammonia and 2-deutero-ammonia, F. P. Reding and D. F. Hornig—1053
Diatomic molecules, A. P. Altshuller—256
Diatomic molecules, Robert Herman and Richard F. Wallis—637
Diborane liquid, Harold C. Beachell and Eugene J. Levy—2168
Para-dichlorbenzene, James E. Stewart—986(L)
1,4-Dichlorocyclohexane, Tsuneo Yoshino—1974(L)
1,2-Dichloroethane, acetyl acetone adsorbed on silica gel, Tsuneo Yoshino—1563(L)
Dicyanoacetylene, Foil A. Miller, Roy B. Hannan, Jr., and Lauren R. Cousins—2127
Diethyl ether, two-stage cool flame, Russell E. Donovan and William G. Agnew—1592
Cis- and *trans*-diiodoethylene, Sidney I. Miller, Alfons Weber, and Forrest F. Cleveland—44
Dimethyldiacetylene, Alfons Weber and Salvador M. Ferigle—579
Bis-(dimethylglyoximato)-cobalt (III)-complexes, Junnosuke Fujita, Akitsugu Nakahara, and Ryutaro Tsuchida—1541(L)
2,6-Dioxaspiro (3,3) heptane, S. C. Sirkar, Fred L. Voelz, and Forrest F. Cleveland—1684
Ethyl cyanide, Norman E. Duncan and George J. Janz—434
Ethylene, D. F. Eggers, Jr.—221(L)
1-Fluoro-1-chloroethylene, D. E. Mann, N. Acquista, and Earle K. Plyler—2122
Fluorotrichloroethylene, D. E. Mann and Earle K. Plyler—1989
Fluorotrichloroethylene, J. Rud Nielsen, C. W. Gullikson, and A. H. Woollett—1994
Formaldehyde, L. C. Hisatsune and D. F. Eggers, Jr.—487
HCl, HBr, and HI, D. F. Hornig and W. E. Osberg—662
HDS, Glenn A. Crosby, Edward J. Bair, and Paul C. Cross—1660
Hexamethyldisilane, Hiromu Murata and Kazuhiro Shimizu—1968(L)
Hexammine metals complexes, Masahisa Kobayashi and Junnosuke Fujita—1354(L)
H_2Se, E. D. Palik—980(L)
Hydrogen, J. A. A. Ketelaar, J. P. Colpa, and F. N. Hooge—413(L)
Hydrogen fluoride, sulfur dioxide, and hydrogen fluoride-sulfur dioxide solutions, Robert H. Maybury, Sheffield Gordon, and Joseph J. Katz—1277
Hydrogen sulfide, Girard L. Ordway, Paul C. Cross, and Edward J. Bair—541
Hydrozoic acid and deutero-hydrazoic acid: the thermodynamic properties of HN_3, David A. Dows and George C. Pimentel—1258
Inorganic coordination complexes, San-ichiro Mizushima, Ichiro Nakagawa, and J. V. Quagliano—1367(L)

Absorption Spectra (continued)
Intermediate species in the formation of ammonium azide from hydrazoic acid, David A. Dows, George C. Pimentel, and Eric Whittle—1606
Iridium hexafluoride, H. C. Mattraw, N. J. Hawkins, D. R. Carpenter, and W. W. Sabol—985(L)
LiH, William Klemperer—2452(L)
Liquid and gas phases, S. R. Polo and M. Kent Wilson—2376
Liquids, J. A. A. Ketelaar and F. N. Hooge—749(L)
Liquids, J. A. A. Ketelaar and F. N. Hooge—1549(L)
Methanes, halogenated. I. Methylene chloride, Joseph W. Straley—2183
Methyl radical, Jiro Higuchi—2197(L)
Methyltrifluorosilane, R. L. Collins and J. Rud Nielsen—351
Molecular complexes, R. S. Mulliken—397(L)
Monodeuterated pyridine, F. Allan Andersen, Børge Bak, Svend Brodersen, and John Rastrup-Andersen—1047
NaOH and NaOD, William R. Busing—933
Naphthalene, A. L. McClellan and George C. Pimentel—245
Naphthalene, George C. Pimentel, A. L. McClellan, Willis B. Person, and Otto Schnepp—234
Naphthalene and naphthalene-*d*-8, Ellis R. Lippincott and Edward J. O'Reilly, Jr.—238
Naphthalene and naphthalene-d_8, Willis B. Person, George C. Pimentel, and Otto Schnepp—230
$Ni(CO)_4$ vapor, Llewellyn H. Jones—2448(L)
Nitrates and carbonates, J. C. Decius—1290
Nitric oxide, Nathan L. Nichols, C. D. Hause, and R. H. Noble—57
Nitrites and nitrosamines, R. N. Haszeldine and J. Jander—979(L)
Nitrites and nitrosamines, P. Tarte—979(L)
Nitrogen trifluoride, E. L. Pace and Louis Pierce—1248
N_2O K. Lakshmi and J. H. Shaw—1887
NpF_6 and PuF_6, John G. Malm, Bernard Weinstock, and Howard H. Claassen—2192(L)
n-Octane-1,1,1,8,8,8-d_6, George C. Pimentel and William A. Klemperer—376
OH, Herbert P. Broida and Henry J. Kostkowski—754(L)
Oxonium halides, C. C. Ferriso and D. F. Hornig—1464
Paraffins and some structurally analogous polar molecules, N. Sheppard and D. M. Simpson (Mrs. J. N. Agar)—582
Pentafluoroethane, J. Rud Nielsen, Howard H. Claassen, and Norma B. Moran—329
Phenol, Hiroshi Tsubomura—2130
Plutonium hexafluoride, N. J. Hawkins, H. C. Mattraw, and W. W. Sabol—2191(L)
Polyethylene, Kurt Rossmann—1355(L)
Polypeptides and proteins, Samuel Krimm—1371(L)
Polyvinyl alcohol film, deuterated, Hiroyuki Tadokoro, Syûzô Seki, and Isamu Nitta—1351(L)
Praseodymium chloride, Edward V. Sayre, Kenneth M. Sancier, and Simon Freed—2060
Praseodymium fluoride, Edward V. Sayre and Simon Freed—2066
SiH_3Br and SiH_2Br_2, Dana W. Mayo, Herman E. Opitz, and John S. Peake—1344(L)
Silyl iodine, R. N. Dixon and N. Sheppard—215(L)
Single crystals, Solomon Zwerdling and Ralph S. Halford—2215
SiO_2, J. Reitzel—2407
Sodium acetate, J. K. Wilmshurst—2463(L)
SOF_2, J. Kenneth O'Loane and M. Kent Wilson—1313
Solid samples, James E. Stewart—986(L)
Succinonitrile, George J. Janz and William E. Fitzgerald—1973(L)
Sym-tetrabromoethane, R. E. Kagarise—207(L)
1,1,2,2-Tetrachloroethane, Kazuo Naito, Ichiro Nakagawa, Kenji Kuratani, Isao Ichishima, and San-Ichiro Mizushima—1907
$TiCl_4$, N. J. Hawkins and D. R. Carpenter—1700
Trideuterosilane, D. R. J. Boyd—922
U(VI), Np(VI), Pu(VI), and Am(VI). Llewellyn H. Jones—2105
Water vapor, Earle K. Plyler and Nicolo Acquista—752(L)
Water vapor, heavy, Fred P. Dickey and James M. Hoffman—1718
Microwave of
s-trans Acrolein, J. Fine, J. H. Goldstein, and J. W. Simmons—601
Cyclopentanone, James H. Burkhalter—1172(L)
Cyclopropyl chloride, James P. Friend, Robert F. Schneider, and B. P. Dailey—1557(L)
DCCCl and DCN, Robert L. White—253
Diatomic molecules, B. P. Dailey and C. H. Townes—118
Ethyl bromide, R. S. Wagner, N. Solimene, and B. P. Dailey—599(L)
Ethylenimine, T. E. Turner, Verna C. Fiora, and W. M. Kendrick—1966(L)
Ethyl fluoride, J. Kraitchman and B. P. Dailey—184
Formamide, R. J. Kurland—2202(L)
Formic acid, R. G. Lerner, J. P. Friend, and B. P. Dailey—210(L)
HCN and DCN, Robert L. White—249
HDO, Samuel Weisbaum, Yardley Beers, and Gabriel Herrmann—1601
HDS, Glenn A. Crosby, Edward J. Bair, and Paul C. Cross—1660
Hydrogen peroxide, J. T. Massey and Robert W. Hart—942
Linear molecules, William V. Smith, H. A. Lackner, and A. B. Volkov—389
Methyl alcohol, Jerome D. Swalen—1739(L)
Methyl alcohol, Putcha Venkateswarlu, Howard D. Edwards, and Walter Gordy—1195
Methyl alcohol, Putcha Venkateswarlu and Walter Gordy—1200
Methylamine, J. G. Aston and Frank L. Gittler—211(L)
Methylamine, Tetsuji Nishikawa, Takashi Itoh, and Koichi Shimoda—1735(L)
Methylchloroacetylene, C. C. Costain—2037
Methyl mercaptan, Ralph W. Kilb—1736(L)
Methyl mercaptan, N. Solimene and B. P. Dailey—124
Propiolactone, Nowhan Kwak, J. W. Simmons, and J. H. Goldstein—2450(L)
Propiolic aldehyde, John A. Howe and J. H. Goldstein—1223
Trimethylene oxide, Jose Fernandez, Rollie J. Myers and William D. Gwinn—758(L)
Water, heavy, D. W. Posener—1728(L)
Of Crystals
Absorption spectrum and quantum states of the praseodymium ion. I. Single crystals of praseodymium chloride, Edward V. Sayre, Kenneth N. Sancier, and Simon Freed—2060
Absorption spectrum and quantum states of the praseodymium ion. II. Anhydrous praseodymium fluoride in films, Edward V. Sayre and Simon Freed—2066
Absorption spectrum of $NaNO_3$ exposed to ionizing radiation, P. Pringsheim—369
Color center in smoky quartz, Alvin J. Cohen—589(L)

Comment on "color centers smoky quartz," George W. Arnold, Jr.—590(L)
Coupling of the out-of-plane bending mode in nitrates and carbonates of the aragonite structure, J. C. Decius—1290
Direct production of spectroscopic specimens from single crystals by controlled growth from a vapor, Solomon Zwerdling and Ralph S. Halford—2215
Force constants, infrared spectrum, and thermodynamic properties of $TiCl_4$, N. J. Hawkins and D. R. Carpenter —1700
Further observations on color center precursors, M. Hacskaylo and P. Schwed—1362(L)
Impurity induced color centers in fused silica, Alvin J. Cohen—765(L)
Infrared spectra and structure of the crystalline sodium acetate complexes of U(VI), Np(VI), Pu(VI), and Am(VI). A comparison of metal-oxygen bond distance and bond force constant in this series, Llewellyn H. Jones—2105
Infrared spectrum and the structure of the low-temperature phases of crystalline HCl, HBr, and HI, D. F. Hornig and W. E. Osberg—662
Infrared spectrum of solid ammonium azide: a vibrational assignment, David A. Dows, Eric Whittle, and George C. Pimentel—1475
Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947
Infrared studies of naphthalene and naphthalene-d_8, Willis B. Person, George C. Pimentel, and Otto Schnepp—230
Interpretation of the infrared spectrum of a molecular crystal: naphthalene, George C. Pimentel, A. L. McClellan, Willis B. Person, and Otto Schnepp—234
Low resolution electronic spectrum of crystalline *para*-dimethoxybenzene with application to benzene, Andreas C. Albrecht and William T. Simpson—1480
Low resolution electronic spectrum of hexamethylbenzene with application to benzene, Richard C. Nelson and William T. Simpson—1146
Motions of molecules in condensed sytsems. IX. Infrared absorption anisotropy and induced molecular motion in a single crystal of benzene, Solomon Zwerdling and Ralph S. Halford—2221
Reactor and gamma-ray induced coloring in crystalline quartz and Corning fused silica, Paul W. Levy—764(L)
Selection rules for normal modes of chain molecules, Marvin C. Tobin—891
Vibrational assignment and thermodynamic properties of naphthalene, A. L. McClellan and George C. Pimentel—245
Vibrational spectra and assignment of naphthalene and naphthalene-*d*-8, Ellis R. Lippincott and Edward J. O'Reilly, Jr.—238
Vibrational spectra of molecules and complex ions in crystals. VIII. The infrared spectrum of a mixed crystal of 1-deutero-Ammonia and 2-deutero-Ammonia, F. P. Reding and D. F. Hornig—1053
Visible or Ultraviolet of
Alcohol-fluorohydrocarbon system, R. S. McDonald, J. H. Gibbs, and J. R. Ladd—1170(L)
Amino asymmetric triazines, R. C. Hirt and R. G. Schmitt —600(L)
Anthracene, L. E. Lyons—1973(L)
Aromatic ketones, Donald S. McClure and Phillip L. Hanst—1772
Benzenes substituted, L. E. Orgel—1352(L)
Benzene, toluene, and *para*-xylene, W. J. Potts, Jr.—73
Bicycloheptane and bicycloheptene, Suzanne Stokes and Lucy W. Pickett—258
Bromine, Dennis F. Evans—1426
Carbon dioxide and carbon monoxide in the, H. Sun and G. L. Weissler—1625
Carbon monoxide-oxygen. I. The visible spectrum, R. H. Knipe and Alvin S. Gordon—2097
Chlorine-benzene complex, Hideo Murakami—1957(L)
Chlorophyll, Edwin W. Abrahamson and Henry Linschitz —2198(L)
Color centers in alkali halides, E. Hutchinson and P. Pringsheim—1113
Color center precursors, M. Hacskaylo and P. Schwed—1362(L)
Cycloheptatrienyl (Tropylium) ion, J. N. Murrell and H. C. Longuet-Higgins—2347
Ortho- and *para*-dichlorobenzene, Tosinobu Anno and Ikuo Matubara—796
para-dimethoxybenzene, Andreas C. Albrecht and William T. Simpson—1480
Ethylene and ethylene-d_4, P. G. Wilkinson and R. S. Mulliken—1895
Ethylene-like molecules, Robert G. Parr and Rudolph Pariser—711
Fluorochromate ion, chromyl chloride, and some related compounds, Lindsay Helmholz, Harry Brennan, and Max Wolfsberg—853
Halides, Leonard I. Katzin—2055
Hexamethylbenzene, Richard C. Nelson and William T. Simpson—1146
Iodine, Dennis F. Evans—1424
Irradiated plastic scintillators, J. H. Pannell and B. Manning—1368(L)
Lanthanide and actinide ions, Chr. Klixbull Jørgensen, 399(L)
Lanthanide and actinide ions, Robert A. Satten—400(L)
Manganous and other transition-metal complexes, L. E. Orgel—1824
Methane and ammonia, H. Sun and G. L. Weissler—1160
Methylnaphthalenes, H. M. McConnell and D. D. Tunnicliff—927
Naphthalene, Donald S. McClure and Otto Schnepp—1575
Naphthalenes, light and heavy, H. Sponer and C. D. Cooper—646
Nitric oxide, H. Sun and G. L. Weissler—1372(L)
Nitrites and nitrosamines, R. N. Haszeldine and J. Jander —979(L)
Nitrites and nitrosamines, P. Tarte—979(L)
Nitro or carbonyl group, Saburo Nagakura—1441
N_2O and NO, W. C. Walker and G. L. Weissler—1962 (L)
OH, S. S. Penner, and H. Aroeste—2244
Olefins, W. J. Potts, Jr.—65
Ortho-, *meta-*, and *para*-phenylenediamine, Akira Sadô and Tosinobu Anno—1740(L)
Perfluoroheptane solutions, Dennis F. Evans—1429
Polyacenes, S. P. McGlynn, M. R. Padhye, and M. Kasha —593(L)
Praseodymium chloride, Edward V. Sayre, Kenneth M. Sancier, and Simon Freed—2060
Praseodymium fluoride, Edward V. Sayre and Simon Freed—2066
Rare earth ions in octahydrated sulfate crystals, R. A. Satten and D. J. Young—404(L)
Thallous chloride, Allen B. Scott and Kuo-Hao Hu—1830
Thermochromic and photochromic compounds, Yehuda Hirshberg and Ernst Fischer—1723(L)
Thermochromic and photochromic compounds, G. Kortüm, W. Theilacker, and V. Braun—1723(L)
Transition-metal complexes, L. E. Orgel—1004

Accommodation Coefficients
Thermal accommodation coefficient of helium on a bare tungsten surface, Lloyd B. Thomas and E. B. Schofield —861
Adsorption (see **Surface Phenomena**)
Apparatus and Methods
Alternative method for calculating SCF orbitals, H. Brion, R. Lefebvre, and C. M. Moser—1972(L)
Applications in physics of the *P* function, Joseph I. Masters—1865
Calculation of the correction to be applied to gas isotherms measured in the presence of mercury, W. B. Jepson and J. S. Rowlinson—1599
Compressibility of gases. I. The Burnett method. An improved method of treatment of the data. Extension of the method to gas mixtures, William C. Pfefferle, Jr., John Goff, and John G. Miller—509
Determination of absolute intensities from single- and multiple-path absorption measurements, S. S. Penner and H. Aroeste—2244
Direct production of spectroscopic specimens from single crystals by controlled growth from a vapor, Solomon Zwerdling and Ralph S. Halford—2215
Equivalent circuit for a coil cell used in rf titrimetry, J. R. Haskins, George Heller, and Eugene Miller—755(L)
Evaluation of certain three-center integrals, J. R. Streetman—1348(L)
Invariance of integrated transmittance and total fractional transmission with experimental slit function, C. R. DePrima and S. S. Penner—757(L)
Least-squares calculation of OVFF force constants for XY_4 tetrahedral molecules, William S. Horton—1727(L)
Measurement of the magnetic susceptibility of manganese nitride Mn_5N_2 by a microvibration method, Y. L. Yousef, R. K. Girgis, and H. Mikhail—959
Modified bond-eigenfunction method of calculating potential energy surfaces and its application to the reaction $H + H_2 \rightarrow H_2 + H$, Iwao Yasumori—1566(L)
Molecular calculations. II. Methods of approximation of molecular integrals, Frank O. Ellison—2358
New method for the kinetic study of fast electrode reactions, Talivaldis Berzins and Paul Delahay—972(L)
Note on the atom form factor calculated from the Thomas-Fermi model, T. Tietz—1565(L)
Note on the preparation of solid ozone and atomic oxygen, H. P. Broida and J. R. Pellam—409(L)
Pulse technique for measurement of the probability of formation and mobility of negative ions, K. B. McAfee, Jr.—1435
Rate of convergence of Madelung series by the method of Bertaut, David H. Templeton—1629
Reply to Brinkman's letter: concerning my letter "approximate analytic solution of the Thomas-Fermi equation for atoms", T. Tietz—1560(L)
Reply to Tietz' letter: "Approximate analytic solution of the Thomas-Fermi equation for atoms", H. C. Brinkman —1560(L)
Report on notation for the spectra of polyatomic molecules —1997
Separation of nitrogen isotopes by chemical exchange between No and HNO_3, W. Spindel and T. I. Taylor—981 (L)
Series solutions for the rate equations of complex reaction mechanisms, J. C. Morrow—2452(L)
Single crystals of the oxides of the transition elements by the flame fusion method, E. J. Scott—2459(L)
Small grating spectrometer for the far infrared region, Earle K. Plyler and Nicolo Acquista—752(L)
Catalysis
Acid catalysis in the thermal decomposition of ammonium nitrate, Bernard J. Wood and Henry Wise—693
Catalytic activity induced by neutron irradiation of inert silica, P. S. Weisz and B. W. Swegler—1567
Effect of crystal orientation on the activation energy for the catalytic decomposition of formic acid on silver, H. M. C. Sosnovsky—1486
Hydrogen peroxide photocatalyzed reaction of hydrogen and oxygen, David H. Volman—2458(L)
Iron catalyzed reaction between nitrosyl disulfonate and hydroxylamine monosulfate ions, William J. Ramsey and Don M. Yost—2153
Mechanism of the catalytic activation of molecular hydrogen by metal ions, J. Halpern and E. Peters—605(L)
Nitric oxide catalyzed *cis-trans* isomerization of dideuteroethylene, B. S. Rabinovitch and F. S. Looney—2439 (L)
Remarks on "nitric oxide catalyzed *cis-trans* isomerization of dideuteroethylene," Harden M. McConnell—2440(L)
Chemical Reactions (see **Kinetics of Reactions**)
Conductance
Conductances of trimethylphenylammonium chloride and iodide in water and in dimethylformamide at 25°C, Paul G. Sears, Eugene D. Wilhoit, and Lyle R. Dawson— 1274
Dc resistivity in the nickel and nickel zinc ferrite system, L. G. Van Uitert—1883
Effect of sorbed water vapor upon the electrical conductivity of conditioned chromium films, Jerrold M. Seehof and Hans J. Trurnit—2459(L)
Effects of oxygen on PbS films, Henry T. Minden—1948
Electrical conductivity of hydrocarbon cracking catalyst, P. B. Weisz, C. D. Prater, and K. D. Rittenhouse— 1965(L)
Ionic conductances of some solid metallic azides, P. W. M. Jacobs and F. C. Tompkins—1445
Polarization in thorium oxide crystals, W. E. Danforth— 591(L)
Semiconductivity of crystalline aromatic substances, A. Many, E. Harnik, and D. Gerlich—1733(L)
Crystalline State
Absolute thermal decomposition rates of solids. Part II. The vacuum sublimation rate of molecular crystals, Robert D. Schultz and Albert O. Dekker—2133
Absorption spectrum and quantum states of the praseodymium ion. II. Anhydrous praseodymium fluoride in films, Edward V. Sayre and Simon Freed—2066
Absorption spectrum and quantum states of the praseodymium ion. I. Single crystals of praseodymium chloride, Edward V. Sayre, Kenneth M. Sancier, and Simon Freed —2060
Absorption spectrum of $NaNO_3$ exposed to ionizing radiation, P. Pringsheim—369
Bonding in the zinc family metals, W. E. Wallace—2281
Capacitance and conductance effects in photoconducting alkali halide crystals, James Ross Macdonald—275
Catalytic activity induced by neutron irradiation of inert silica, P. B. Weisz and E. W. Swegler—1567
Cathodo-luminescence spectrum and energy levels in MgO, B. D. Saksena and L. M. Pant—989(L)
Chlorine nuclear quadrupole resonances in solid solutions, C. Dean—1734(L)
Cl_{35} pure quadrupole resonances in acid chlorides and chlorates, P. J. Bray—703
Color centers in alkali halides containing NO_2-ions in small concentration, E. Hutchinson and P. Pringsheim— 1113

Color centers in smoky quartz, Alvin J. Cohen—589(L)
Comment on "color centers in smoky quartz", George W. Arnold, Jr.—590(L)
Concerning hydrogen positions in aquo complexes—$CuCl_2 \cdot 2H_2O$, R. E. Rundle, Kazuo Nakamoto, and James W. Richardson—2450(L)
Contraction of germanium on melting, R. C. Sangster and J. N. Carman, Jr.—206(L)
Coupling of the out-of-plane bending mode in nitrates and carbonates of the aragonite structure, J. C. Decius—1290
Crystal growth and coercive forces of variously prepared Ni powders, Welby C. Courtney—1174(L)
Crystal structure and quadrupole coupling of cyanogen bromide, BrCN, S. Geller and A. L. Schawlow—779
Crystal structure of aluminum nitride, G. A. Jeffrey and G. S. Parry—406(L)
Crystallographic formalism IB: reply to Nowacki's letter "the number of x-ray diffraction groups", C. D. West—1172(L)
Dc resistivity in the nickel and nickel zinc ferrite system, L. G. Van Uitert—1883
Dependence of the constants in the Curie-Weiss law on exchange, C. M. Herzfeld—398(L)
Determination of the atomic weight of silicon by physical measurements on quartz, Clifford Frondel and C. S. Hurlbut, Jr.—1215
Dielectric dispersion of rochelle salt in the microwave region, Hunio Akao and Taizo Sasaki—2210
Dielectric properties of solid hydrogen and deuterium halides, S. Havriliak, Jr. and R. H. Cole—2455(L)
Diffusion of zinc in crystalline zinc oxide, E. A. Secco and W. J. Moore—1170(L)
Dimorphism of *para*-dichlorobenzene, G. A. Jeffrey and W. J. McVeagh—1165(L)
Direct production of spectroscopic specimens from single crystals by controlled growth from a vapor, Solomon Zwerdling and Ralph S. Halford—2215
Dynamic equilibrium of inverted isomers in a crystalline phase, Tsuneo Yoshino—1974(L)
Effect of crystal orientation on the activation energy for the catalytic decomposition of formic acid on silver, H. M. C. Sosnovsky—1486
Effect of pressure on self-diffusion in white phosphorus, Norman H. Nachtrieb and A. W. Lawson—1193
Effect of proton irradiation upon the rate of solution of Fe_2O_3 in hydrochloric acid, M. Simnad and R. Smoluchowski—1961(L)
Effect of V_2O_5 on nickel-ferrite formation, D. M. Grimes, L. Thomassen, C. F. Jefferson, and N. C. Kothary—2205(L)
Electrical conductivity of hydrocarbon cracking catalyst, P. B. Weisz, C. D. Prater, and K. D. Rittenhouse—1965(L)
Electronic states of the naphthalene crystal, Donald S. McClure and Otto Schnepp—1575
Equation of state and the thermal dependence of the elastic coefficients of crystalline argon, John H. Henkel—681
Evaporation of submicroscopic ice crystals, Mary Foulks Gourley and W. D. Crozier—1298
Evidence for the interconversion of monochloroacetic acid by its pure quadrupole spectrum, Hisao Negita—214(L)
Experimental study of the mechanism of thermoluminescence in irradiated sodium chloride, J. J. Hill and P. Schwed—652
Fluorescence of self-activated zinc-sulfide, Arrigo Addamiano—1541(L)
Formation of photographic positives on strained single crystals of silver chloride, Henry Leidheiser, Jr., and Frances H. Cook—595(L)
Further observations on color center precursors, M. Hacskaylo and P. Schwed—1362(L)
Grüneisen's constant for some metals, J. J. Gilvarry—1925
Heat capacity and entropy of FeF_2 and CoF_2 from 11 to 300°K thermal anomalies associated with antiferromagnetic ordering, Edward Catalano and J. W. Stout—1803
Heat capacity of NiF_2 from 12 to 300°K thermodynamic functions of NiF_2. The thermal anomaly associated with the antiferromagnetic ordering, Edward Catalano and J. W. Stout—1284
Heat capacity of zinc fluoride from 11 to 300°K. Thermodynamic functions of zinc fluoride. Entropy and heat capacity associated with the antiferromagnetic ordering of manganous fluoride, ferrous fluoride, cobaltous fluoride and nickelous fluoride, J. W. Stout and Edward Catalano—2013
Hindered rotation of water molecules of hydration in $Mg(H_2O)_6Cl_2$ and $Mg(H_2O)_6Br_2$, Tunahiko Sidei and Syukuro Yano—1554(L)
Impurity induced color centers in fused silica, Alvin J. Cohen—765(L)
Infrared spectra and structure of NaOH and NaOD, William R. Busing—933
Infrared spectra and structure of the crystalline sodium acetate complexes of U(VI), Np(VI), Pu(VI), and Am(VI). A comparison of metal-oxygen bond distance and bond force constant in this series, Llewellyn H. Jones—2105
Infrared spectra of gaseous and solid hydrozoic acid and deutero-hydrazoic acid: the thermodynamic properties of HN_3, David A. Dows and George C. Pimentel—1258
Infrared spectra of intermediate species in the formation of ammonium azide from hydrazoic acid, David A. Dows, George C. Pimentel, and Eric Whittle—1506
Infrared spectrum and molecular structure of succinonitrile, George J. Janz and William E. Fitzgerald—1973(L)
Infrared spectrum of solid ammonium azide: a vibrational assignment, David A. Dows, Eric Whittle, and George C. Pimentel—1475
Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947
Interaction of methylene deformation frequencies in paraffin crystals. II. A theoretical treatment of the interaction of vibrations, Richard S. Stein—734
Intermolecular forces and the crystal structures of the rare gases, John Jansen and Laurens M. Dawson—482
Intermolecular potentials of argon, krypton, and xenon, E. Whalley and W. G. Schneider—1644
Ionic conductances of some solid metallic azides, P. W. M. Jacobs and F. C. Tompkins—1445
Lattice energies of the alkaline earth imides and the heat of formation of NH^{-2}, Aubrey P. Altshuller—1561(L)
Liquid surface tension measurements by analysis of solid-state curvatures; the surface tension of liquid germanium, R. C. Sangster and J. N. Carman, Jr.—1142
Long time phosphorescence of organic crystals, Hartmut Kallmann, Bernard Kramer, and Eugene Sucov—1043
Low resolution electronic spectrum of crystalline *para*-dimethoxybenzene with application to benzene, Andreas C. Albrecht and William T. Simpson—1480
Low resolution electronic spectrum of hexamethylbenzene with application to benzene, Richard C. Nelson and William T. Simpson—1146
Magnetic properties of uranium hydride, Dieter M. Gruen—1708

Crystalline State (continued)
Magnetic susceptibilities of some uranium (IV) compounds, Clyde A. Hutchison, Jr. and Charles M. Herzfeld—1650
Magnetic susceptibility and free energy of graphite bromide, G. R. Hennig and J. D. McClelland—1431
Magnetism on optical excitation of manganese-activated zinc sulfide phosphors, Keichi Oshima and Hiroshi Nagano—1473
Mobility and quantum yield of charge carriers in crystal violet, R. C. Nelson—1550(L)
Molecular structure of diborane tetrachloride, B_2Cl_4, Masao Atoji, William N. Lipscomb, and P. J. Wheatley —1176(L)
Motions of molecules in condensed systems. IX. Infrared absorption anisotropy and induced molecular motion in a single crystal of benzene, Solomon Zwerdling and Ralph S. Halford—2221
New modification of solid nitrogen, C. A. Swenson—1963 (L)
Note on an analytical proof of Wulff's theorem in three dimensions, G. C. Benson and D. Patterson—670
Nuclear magnetic resonance: structure of the amino group I, R. A. Kromhout and W. G. Moulton—1673
Nuclear quadrupole resonance of γ-irradiated *para*-dichlorobenzene, Jules Duchesne, Andre Monfils, and Julien Garsou—1969(L)
Nuclear quadrupole resonances in solid iodine compounds, S. Kojima, K. Tsukada, S. Ogawa, and A. Shimauchi—1963(L)
Nuclear quadrupole resonances of Sb^{121} and Sb^{123}, R. G. Barnes and P. J. Bray—1177(L)
Number of x-ray diffraction groups, Werner Nowacki—1172(L)
One-dimensional model of the hydrogen bond, Ellis R. Lippincott and Rudolph Schroeder—1099
Optical properties of solids, Herbert B. Rosenstock—2415
Order-disorder transitions in the alkali borohydrides, C. C. Stephenson, D. W. Rice, and W. H. Stockmayer—1960(L)
Origin of the line width of pure quadrupole resonance, Y. Kôi, A. Tsujimura, and T. Fuke—1346(L)
Oxidation states of phosphorus-32 produced by neutron irradiation of potassium chloride, T. A. Carlson and W. S. Koski—1596
Paramagnetic resonance absorption in single crystals of diphenylpicrylhydrazyl at low temperatures, L. S. Singer and C. Kikuchi—1738(L)
Paramagnetic resonance absorption in some Cr^{+3} complexes, L. S. Singer—379
Paramagnetic resonance of color centers in $NaNO_3$, William B. Ard, Jr.—1967(L)
Paramagnetic resonance of NaCl crystals containing additions of manganese impurity, Keichi Oshima, Hidetaro Abe, Hiroshi Nagano, and Makoko Nagusa—1721(L)
Phosphorescence of solids containing the manganous or ferric ions, L. E. Orgel—1958(L)
Photoconductivity and crystal imperfections in cadmium sulfide crystals. Part II. Determination of characteristic photoconductivity quantities, Richard H. Bube—18
Photoconductivity and crystal imperfections in cadmium sulfide crystals. Part I. Effect of impurities, Richard H. Bube and S. Milton Thomsen—15
Polarization in thorium oxide crystals, W. E. Danforth—591(L)
Polarized spectra of anthracene crystals and Davydov splitting, L. E. Lyons—1973(L)
Prediction of Madelung constants, David H. Templeton—1826
Proposed structure of certain spinels at high temperature, William T. Holser—764(L)
Proton magnetic resonance in liquid crystals—orientation effects, P. L. Jain, J. C. Lee, and R. D. Spence—878
Proton magnetic resonance of the CH_3 group. III. Reorientation mechanism in solids, J. G. Powles and H. S. Gutowsky—1692
Proton resonance in barium chlorate monohydrate, R. D. Spence—1166(L)
Radio-frequency vibrational absorption in piezoelectric crystals, Jules Duchesne and Andre Monfils—762(L)
Rate of convergence of Madelung series by the method of Bertaut, David H. Templeton—1629
Rate of evaporation of graphite, R. J. Thorn and G. H. Winslow—1369(L)
Reactor and gamma-ray induced coloring in crystalline quartz and Corning fused silica, Paul W. Levy—764(L)
Screw dislocations in growth from the melt, G. W. Sears —1630
Self-diffusion in α white phosphorus, Norman H. Nachtrieb and George S. Handler—1187
Self-diffusion in lead, Norman H. Nachtrieb and George S. Handler—1569
Self-diffusion in sodium near the melting point, Robert E. Meyer and Norman H. Nachtrieb—405(L)
Semiconductivity of crystalline aromatic substances, A. Many, E. Harnik, and D. Gerlich—1733(L)
Single crystals of the oxides of the transition elements by the flame fusion method, E. J. Scott—2459(L)
Specific heat of graphite at very low temperatures, Warren DeSorbo—1970(L)
Specific heat of lamellar crystals, Gordon F. Newell—2431
Studies on solid state reactions with radiotracers, R. Lindner—410(L)
Study of phase-transformation of orthoboric acid by x-ray diffraction method, D. R. Dasgupta and B. K. Banerjee —2190(L)
Symmetry of the local crystalline field about rare earth ions in octahydrated sulfate crystals, R. A. Satten and D. J. Young—404(L)
Theory of dielectric relaxation for single-axis rotator in a crystalline field. II, John D. Hoffman—1331
Theory of photographic process, K. P. Sinha and A. B. Biswas—404(L)
Theory of the lower excited electronic states of the benzene crystal, David Fox and Otto Schnepp—767
Thermoelectric behavior of nickel oxide, G. Parravano—5
Thermoluminescence and fluorescence in alkali halide crystals induced by soft x-ray, Seymour P. Keller and Jack J. Clemmons—586(L)
Thermoluminescence induced by pressure and by crystallization, Edward J. Zeller, John L. Wray, and Farrington Daniels—2187(L)
Thermoluminescence of zinc sulfide phosphors doubly activated with copper and manganese, Shigeo Shionoya—1976(L)
Vacuum photolysis of silver bromide and silver chloride, George W. Luckey—882
Vector distributions and crystalline proteins, Dorothy Wrinch—1361(L)
Vibrational spectra of molecules and complex ions in crystals. VIII. The infrared spectrum of a mixed crystal of 1-deutero-ammonia and 2-deutero-ammonia, F. P. Reding and D. F. Hornig—1053
X-ray crystallographic study of phase-transformation of borax during thermal treatments, D. R. Dasgupta and B. K. Banerjee—2189(L)
X-ray diffraction patterns of $TiCl_2$ and $TiCl_3$, Milton Farber, A. J. Darnell, and Frank Brown—1556(L)

Zero-point energy of monatomic crystals, W. C. DeMarcus —602(L)

Crystal Structure

Concerning hydrogen positions in aquo complexes—$CuCl_2 \cdot 2H_2O$, H. E. Rundle, Kazuo Nakamoto, and James W. Richardson—2450(L)

Crystal structure and quadrupole coupling of cyanogen bromide, BrCN, S. Geller and A. L. Schawlow—779

Crystal structure of aluminum nitride, G. A. Jeffrey and G. S. Parry—406(L)

Dimorphism of *para*-dichlorobenzene, G. A. Jeffrey and W. J. McVeagh—1165(L)

Infrared spectra and structure of the crystalline sodium acetate complexes of U(VI), Np(VI), Pu(VI), and Am(VI). A comparison of metal-oxygen bond distance and bond force constant in this series, Llewellyn H. Jones—2105

Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947

Molecular structure of diborane tetrachloride, B_2Cl_4, Masao Atoji, William H. Lipscomb, and P. J. Wheatley—1176(L)

Study of phase-transformation of orthoboric acid by x-ray diffraction method, D. R. Dasgupta and B. K. Banerjee —2190(L)

Symmetry of the local crystalline field about rare earth ions in octahydrated sulfate crystals, R. A. Satten and D. J. Young—404(L)

X-ray crystallographic study of phase-transformation of borax during thermal treatments, D. R. Dasgupta and B. K. Banerjee—2189(L)

X-ray diffraction patterns of $TiCl_2$ and $TiCl_3$, Milton Farber, A. J. Darnell, and Frank Brown—1556(L)

X-ray diffraction study of four reinforcing carbon blacks, Leroy Alexander and Stephen R. Darin—594(L)

Detonation

Detonation waves and the principle of minimum entropy production, George H. Duffey—401(L)

Effect of initial temperature on minimum spark-ignition energy, I. R. King and H. F. Calcote—2444(L)

Equation of state of gases by shock wave measurements. I. Experimental method and the Hugoniot of argon, Russell H. Christian and Frederick L. Yarger—2042

Equation of state of gases by shock wave measurements. II. The dissociation energy of nitrogen, R. H. Christian, R. E. Duff, and F. L. Yarger—2045

Gaseous detonations. VI. The rarefaction wave, G. B. Kistiakowsky and P. H. Kydd—271

Gaseous detonations. VII. A study of thermodynamic equilibration in acetylene-oxygen waves, G. B. Kistiakowsky and Walter G. Zinman—1889

Luminous zone in the detonation of equimolar acetylene-oxygen, Arthur L. Bennett and Henry W. Wedaa—1359 (L)

Measurements of the Chapman-Jouguet pressure and reaction zone length in a detonating high explosive, Russell E. Duff and Edwin Houston—1268

Mechanism of detonation, Melvin A. Cook—409(L)

Sensitivity of explosives to pure shocks, William A. Gey and Arthur L. Bennett—1979(L)

Structure of a detonation front, W. R. Gilkerson and Norman Davidson—687

Values of thermodynamic functions to 12 000°K for several substances, W. Fickett and R. D. Cowan—1349(L)

Deuterium (see **Isotopes**)

Dielectrics

Analysis of dielectric relaxation measurements, Robert H. Cole—493

Contributions of fluctuations and anisotropy to dielectric polarization in polar substances, Frank E. Harris—1663

Dielectric absorption of triethylamine solutions, Mansel Davies and A. H. Price—2204(L)

Dielectric constant of polar liquids at high field strengths, F. Booth—453

Dielectric constants of liquid and solid hydrogen sulfide, S. Havriliak, R. W. Swenson, and R. H. Cole—134

Dielectric dispersion of rochelle salt in the microwave region, Hunio Akao and Taizo Sasaki—2210

Dielectric properties of liquid butyl alcohols, Walter Dannhauser and Robert H. Cole—1762

Dielectric properties of liquid ethanol and 2-propanol, F. X. Hassison and R. H. Cole—1756

Dielectric properties of methanol and methanol-1-propanol solutions, Donald J. Denny and Robert H. Cole—1767

Dielectric properties of solid hydrogen and deuterium halides, S. Havriliak, Jr. and R. H. Cole—2455(L)

Effect of interfacial conductivity on dielectric properties, C. T. O'Konski—1559(L)

Electrochemical polarization in isopropyl ether, John A. Rider—61

Erratum: Equation of state and the thermal dependence of the elastic coefficient of crystalline argon, John H. Henkel—1961(L)

Experiment on the carnauba wax electret, Robert Gerson and J. H. Rohrbaugh—2381

Inertial effects and dielectric relaxation, E. P. Gross—1415

Infrared intensities in liquid and gas phases, S. R. Polo and M. Kent Wilson—2376

Line broadening and dielectric relaxation in compressed gases, C. S. E. Phillips—2388

Microwave dispersion of monosubstituted benzenes; evidence for molecular resonance absorption, J. Ph. Poley —405(L)

Quantitative comparison of the approximate dielectric polarization theories with an exact one at low densities, A. D. Buckingham—2370

Solid mixture permittivities, William Fuller Brown, Jr.—1514

Theory of dielectric relaxation for single-axis rotator in a crystalline field. II, John D. Hoffman—1331

Transformation of adsorbed water on solid surfaces and its dielectric losses and conductivities, Shifehiko Kurosaki, Shogo-Saito, and Genju Sato—1846

Diffusion

Binary diffusion of similar or isotopic molecules in three component systems, William P. Senett, Fred Gollob, and T. I. Taylor—1679

Diffusion coefficients of fatty acids and monobasic phosphoric acids in *n*-decane, J. R. White—2247

Diffusion of radioactive calcium in $Ca_3Si_2O_7$, R. Lindner and Arthur S. Obermayer—988(L)

Diffusion of radioactive ions in ion exchangers, Shintaro Sugai and Jiro Furuichi—1181(L)

Diffusion of zinc in crystalline zinc oxide, E. A. Secco and W. J. Moore—1170(L)

Effect of pressure on self-diffusion in white phosphorus, Norman H. Nachtrieb and A. W. Lawson—1193

Forces between unlike molecules and the properties of gaseous mixtures, Edward A. Mason—49

Hydrodynamic frictional and diffusion coefficients in idealized liquids. I. The collisional contribution, F. C. Collins and H. Raffel—1454

Interaction of rotational and translational diffusion, Stephen Prager—2404

Interdiffusion in the gaseous systems: $BF_3 - CCl_4$ and $BCl_3 - CCl_4$, C. J. G. Raw—973(L)

Interrelation of gaseous viscosity, self-diffusion, and isotopic thermal diffusion, Eugene M. Holleran—847

Diffusion (continued)
Magnitude of diffusive displacements in liquids, Richard M. Noyes—1982(L)
Note on the fundamental low of diffusion, J. D. Babbitt—601(L)
Phenomenological theory of the Soret diffusion, James A. Bierlein—10
Resistance in a liquid-liquid interface. III. The effect of molecular properties, J. H. Sinfelt and H. G. Drickamer—1095
Sedimentation velocity and diffusion of a solvated substance, Ping-Yao Cheng—191
Self-diffusion coefficient and viscosity in liquids, James C. M. Li and Pin Chang—518
Self-diffusion in α white phosphors, Norman H. Nachtrieb and George S. Handler—1187
Self-diffusion in lead, Norman H. Nachtrieb and George S. Handler—1569
Self-diffusion of liquid sodium, R. E. Meyer and N. H. Nachtrieb—1851
Self-diffusion in sodium near the melting point, Robert E. Meyer and Norman H. Nachtrieb—405(L)
Self-diffusion of carbon tetrachloride isobars, and isochores, H. Watts, B. J. Alder, and J. H. Hildebrand—659
Self-diffusion of ions in molten electrolyte under the influence of an electric field, Ling Yang and M. Simnad—1295
Studies on solid state reactions with radiotracers, R. Lindner—410(L)
Theory of the Faradaic admittance. III. Application of diffusion theory to current-interrupter studies, William T. Scott—1936

Dipole Moment
Calculation of the dipole moment of the carbon-hydrogen bond in methane by the Thomas-Fermi method, Herbert Glazer and Howard Reiss—937
Contributions of fluctuations and anisotropy to dielectric polarization in polar substances, Frank E. Harris—1663
Electronic structure and electronic spectra of ethylene-like molecules, Robert G. Parr and Rudolph Pariser—711
Influence of vibration-rotation interaction on line intensities in vibration-rotation bands of diatomic molecules, Robert Herman and Richard F. Wallis—637
Microwave spectrum of propiolic aldehyde, John A. Howe and J. H. Goldstein—1223
Pure rotation lines of OH, R. P. Madden and W. S. Benedict—408(L)
Quantitative comparison of the approximate dielectric polarization theories with an exact one at low densities, A. D. Buckingham—2370

Electrochemistry
Concerning the temperature coefficient of the emf of reversible galvanic cells operated at variable concentration. II, James C. M. Li—2012
Electron theory of metals and hydrogen overvoltage, Paul Rüetschi and Paul Delahay—1167(L)
"Hump" in the capacity of the electrical double layer, David C. Grahame—1725(L)
Hydrogen overvoltage and electrode material. A theoretical analysis, Paul Rüetschi and Paul Delahay—195
Influence of electrode material on oxygen overvoltage: A theoretical analysis, Paul Rüetschi and Paul Delahay—556
New method for the kinetic study of fast electrode reactions, Talivaldis Berzins and Paul Delahay—972(L)
Note on theories of time-varying space-charge polarizations, J. Ross Macdonald—2308
Note on the potential of the α-P/dH_2 electrode, Sigmund Schuldiner and James P. Hoare—1551(L)
Overvoltages at the • electrode: method Pb/$PbCl_2$, R. Piontelli and G. Sternheim—1358(L)
Overvoltages in melted electrolytes, R. Piontelli and G. Sternheim—1971(L)
Phenomenological relations of electro-osmosis in paper electrochromatography, Scott E. Wood—1881
Potential at zero charge for reversible and ideal polarized electrodes, Paul Rüetschi and Paul Delahay—697
Specific absorption of ions in the electrical double layer, David C. Grahame—1166(L)
Strain potentials, R. S. Dudley, R. Elliott, W. H. McFadden, and L. W. Shermilt—585(L)
Study of electrokinetic effects using sinusoidal pressure and voltage, Claude E. Cooke, Jr.—2299
Theory of the Faradaic admittance. III. Application of diffusion theory to current-interrupter studies, William T. Scott—1936

Electron Diffraction
Anomalous electron scattering from iodine vapor, I. L. Karle—1739(L)
Effects of anharmonicity of vibration on the diffraction of electrons by free molecules, L. S. Bartell—1219
Refined procedure for analysis of electron diffraction data and its application to CCl_4, L. S. Bartell, L. O. Brockway, and R. H. Schwendeman—1854
Structure and internal motion of C_2F_6 and Si_2Cl_6 vapors, D. A. Swick and I. L. Karle—1499
Structure of ferrocene, E. A. Seibold and L. E. Sutton—1967(L)
Structures of CF_3Cl and CH_3Cl, L. S. Bartell and L. O. Brockway—1860

Electron Microscopy
Adsorption of oxygen on tungsten as revealed in the field emission electron microscope, J. A. Becker and R. G. Brandes—1323
Mobility of hydrogen on tungsten, R. Gomer and R. Wortman—1741(L)

Electrophoresis
Electrophoretic "line spectra", Alexander Kolin—407(L)

Emission Spectra
Active nitrogen in the rare gases and its excitation of metal vapors, Carl Kenty—1555(L)
Anomalous light emission of azulene, Michael Beer and H. C. Longuet-Higgins—1390
Cathodo-luminescence spectrum and energy levels in MgO, B. D. Saksena and L. M. Pant—989(L)
Effect of oxygen on luminescence of cadmium sulfide, S. H. Liebson and E. J. West—977(L)
Emission and two-body recombination in bromine, Howard B. Palmer—2449(L)
Experimental determination of rotational temperatures and concentrations of OH in flames from emission spectra, S. S. Penner and E. K. Bjornerud—143
Infrared emission and absorption in an ammonia-oxygen diffusion flame, David A. Dows, Eric Whittle, and George C. Pimentel—499
Infrared spectrum of two-stage cool flame of diethyl ether, Russell E. Donovan and William G. Agnew—1592
Long time phosphorescence of organic crystals, Hartmut Kallmann, Bernard Kramer, and Eugene Sucov—1043
Nitrogen afterglow in a magnetic field, Walter R. Kane and K. C. Clark—859
Production of excited hydroxyl radicals in the hydrogen atom-ozone reaction, J. D. McKinley, Jr., David Garvin, and M. J. Boudart—784
Pure rotation lines of OH, R. P. Madden and W. S. Benedict—408(L)

Relative intensities of anthracene and naphthacene emissions under cathode-ray, ultraviolet, and x-ray excitations, B. D. Saksena and L. M. Pant—987(L)
Sensitized luminescence of zinc phosphors activated with copper and manganese, Shigeo Shinoya—1173(L)
Spectrum of the carbon monoxide-oxygen explosion. I. The visible spectrum, R. H. Knipe and Alvin S. Gordon —2097
Streamer and brush flames excited by active nitrogen in the rare gases, Carl Kenty—1556(L)
Surface recombination of cadmium sulfide, S. H. Liebson —1732(L)
Thermoluminescence and fluorescence in alkali halide crystals induced by soft x-ray, Seymour P. Keller and Jack J. Clemmons—586(L)
Vibrational analysis of the emission spectrum of coronene as a forbidden transition, Jerome W. Sidman—1365(L)

Energy Transfer

Energy exchange between cold gas molecules and a hot graphite surface, Robert Gomer and Lothar Meyer—1370(L)
Energy transfer by collisions in vapors of chlorinated methanes, D. Sette, A. Busala, and J. C. Hubbard—787
Stabilization of energy-rich molecules. I. Energy transfer with hydrogen, M. Boudart and J. T. Dubois—223

Equation of State

Association and the equation of state, Robert Ginell—2395
Calculation of the correction to be applied to gas isotherms measured in the presence of mercury, W. B. Jepson and J. S. Rowlinson—1599
Critical isotherm and the equation of state of liquid-vapor systems, B. Widom and O. K. Rice—1250
Equation of state and the thermal dependence of the elastic coefficients of crystalline argon, John H. Henkel—681
Equation of state of gases by shock wave measurements. I. Experimental method and the Hugoniot of argon, Russell H. Christian and Frederick L. Yarger—2042
Equation of state of gases by shock wave measurements. II. The dissociation energy of nitrogen, R. H. Christian, R. E. Duff, and F. L. Yarger—2045
High-temperature equation of state by a perturbation method. II. Polar gases, Robert W. Zwanzig—1915
Method of extrapolating equation-of-state data to higher temperatures, Roger A. Strehlow—1562(L)

Errata

Errata: Absolute quantum efficiencies of luminescence of organic molecules in solid solution, Earl H. Gilmore, George E. Gibson, and Donald S. McClure—399(L)
Errata: Free-electron network model for conjugated systems. V. Energies and electron distributions in the Fe Mo model and in the LCAO MO model, Klaus Ruedenberg—401(L)
Errata: Free electron treatment of the orientation of substituents in aromatic molecules, Sadhan Basu—1964(L)
Errata: Kinetics of oxidation of ammonia by nitric oxide, Henry Wise and Maurice F. French—1374(L)
Errata: Pressure broadening of linear molecules. II. theory, William V. Smith, H. A. Lackner, and A. B. Volkov—1559(L)
Errata: Time lag in the self-nucleation, Hiromu Wakeshima—763(L)
Erratum: Active nitrogen in the rare gases and its excitation of metal vapors, Carl Kenty—2468(L)
Erratum: Application of the Hertz theory of impact to explosion phenomena, M. P. Murgai—221(L)
Erratum: A quantum-mechanical equation of reaction rates, Iwao Yasumori and Kenji Fueki—398(L)
Erratum: $J = 0 \rightarrow 1$ Rotational transition of trifluoroiodomethane, Fred Sterzer—762(L)
Erratum: Nuclear quadruple resonances of As^{75}, R. G. Barnes and P. J. Bray—1178(L)
Erratum: On intermolecular forces and the crystal structures of the rare gases, Laurens Jansen and John M. Dawson—1729(L)
Erratum: On the fluorescence of self-activated zinc sulfide, Arrigo Addamiano—2469(L)
Erratum: Polymorphism in solution of *cis-* and *trans-β*-methoxy-*p*-nitrochalcone, Yoshiyuki Urushibara, Fujiro Imura, and Kenro Ikeda—759(L)
Erratum: Solution of the wave equation for internal rotation of two completely asymmetric molecules, Donald G. Burkhard and John C. Irvin—2469(L)
Erratum: Some theorems concerning the mutual polarizabilities of atoms and bonds in conjugated molecules, H. J. Jaffé—2206(L)
Erratum: Vacuum photolysis of silver bromide and silver chloride, George W. Luckey—2206(L)

Films (see **Surface Phenomena**)

Flames

Effect of probe size on ion concentration measurements in flames, I. R. King and H. F. Calcote—2203(L)
Effect of turbulence on free flame growth, W. R. Mickelsen and N. E. Ernstein—1558(L)
Effect of turbulence on incipient flame propagation, H. L. Olsen and E. L. Gayhart—402(L)
Experimental determination of rotational temperatures and concentrations of OH in flames from emission spectra, S. S. Penner and E. K. Bjornerud—143
Experimental evidence for the existence of abnormal OH rotational "temperatures" in low-pressure flames, Herbert P. Broida and Henry J. Kostkowski—754(L)
Flame structure studies. III. Gas sampling in a low-pressure propane-air-flame, Raymond Friedman and Joseph A. Cyphers—1875
Fluorescence and average lifetime of excited $OH(^2\Sigma^+)$ in flames, H. P. Broida and Tucker Carrington—2202(L)
Infrared emission and absorption in an ammonia-oxygen diffusion flame, David A. Dows, Eric Whittle, and George C. Pimentel—499
Infrared spectrum of two-stage cool flame of diethyl ether, Russell E. Donovan and William G. Agnew—1592
Note on the validity of one-dimensional flame front models, Robert M. Fristrom—1360(L)
Origin of the electronically excited C_2 radical in hydrocarbon flames, R. E. Ferguson—2085
Pure rotation lines of OH, R. P. Madden and W. S. Benedict—408(L)
Steady-state burning of a liquid droplet. I. Monopropellant flame, Jack Lorell and Henry Wise—1928

Fluorescence

Anomalous light emission of azulene, Michael Beer and H. C. Longuet-Higgins—1390
Electronic states of the naphthalene crystal, Donald S. McClure and Otto Schnepp—1575
Fluorescence and average lifetime of excited $OH(^2\Sigma^+)$ in flames, H. P. Broida and Tucker Carrington—2202(L)
Fluorescence of self-activated zinc-sulfide, Arrigo Addamiano—1541(L)
Fluorescent behavior of solutions containing more than one solvent, Milton Fust and Hartmut Kallmann—607
Quenching of biacetyl fluorescence in solution, Hans L. J. Bäckström and Kjell Sandros—2197(L)
Quenching of NaI fluorescence by H_2, HCl, CO_2, and H_2O, Howard G. Hanson—1391
Relative intensities of anthracene and naphthacene emissions under cathode-ray, ultraviolet, and x-ray excitations, B. D. Saksena and L. M. Pant—987(L)

Fluorescence (continued)
Stabilization of energy-rich molecules. I. Energy transfer with hydrogen, M. Boudart and J. T. Dubois—223
Thermoluminescence and fluorescence in alkali halide crystals induced by soft x-ray, Seymour P. Keller and Jack J. Clemmons—586(L)
Free Rotation (see **Rotational Isomerism**)

Gases
Active nitrogen in the rare gases and its excitation of metal vapors, Carl Kenty—1555(L)
Association and the equation of state, Robert Ginell—2395
Calculation of interaction potentials from scattering cross sections, Edward A. Mason—2457(L)
Calculation of the correction to be applied to gas isotherms measured in the presence of mercury, W. B. Jepson and J. S. Rowlinson—1599
Charge transfer reactions in monatomic and diatomic gases, J. A. Dillon, Jr., W. F. Sheridan, H. D. Edwards, and S. N. Ghosh—776
Collision excitation of molecular vibrations in halogen-substituted methanes, Thomas D. Rossing and Sam Legvold—1118
Compressibilities of ozone, oxygen, and ozone-oxygen mixtures and the thermodynamic quantities for pure ozone, C. M. Birdsall, A. C. Jenkins, F. S. DiPaolo, J. A. Beattie, and C. M. Apt—441
Compressibility of gases. I. The Burnett method. An improved method of treatment of the data. Extension of the method to gas mixtures, William C. Pfefferle, Jr. John Goff, and John G. Miller—509
Dispersion and absorption of sound in imperfect gases in general chemical equilibrium and its application to chemical kinetics, Daisaku Tabuchi—2033
Dissociation by impacts of the second kind, W. E. Groth and O. Oldenberg—729
Dissociation of nitrogen in shock waves, J. P. Toennies and E. F. Greene—1366(L)
Dissociation of water vapor in electric discharge, E. A. Secco—1734(L)
Effect of orientational forces on second virial coefficients, Barbara J. Castle, John M. Dawson, and Laurens Jansen —1733(L)
Energy dependence of inelastic molecular collision probabilities, B. Widom—2377
Energy excitation of vibrations in halo-methane gases, Robert Amme and Sam Legvold—1960(L)
Energy transfer by collisions in vapors of chlorinated methanes, D. Sette, A. Busala, and J. C. Hubbard—787
Equation of state of gases by shock wave measurements. I. Experimental method and the Hugoniot of argon, Russell H. Christian and Frederick L. Yarger—2042
Equation of state of gases by shock wave measurements. II. The dissociation energy of nitrogen, R. H. Christian, R. E. Duff, and F. L. Yarger—2045
Exp: Six potential and properties of gases, M. P. Madan—763(L)
Forces between unlike molecules and the properties of gaseous mixtures, Edward A. Mason—49
Gaseous detonations. VI. The rarefaction wave, G. B. Kistiakowsky and P. H. Kydd—271
High-temperature equation of state by a perturbation method. II. Polar gases, Robert W. Zwanzig—1915
Inertial effects and dielectric relaxation, E. P. Gross—1415
Influence of applied potential on the characteristics of photosensitive non-self-maintained region of a low-frequency electric discharge, B. D. Khosla—1373(L)
Interdiffusion in the gaseous systems: $BF_3 - CCl_4$ and $BCl_3 - CCl_4$, C. J. G. Raw—973(L)
Intermolecular force field of linear molecules with quadrupole moments, A. D. Buckingham—412(L)
Intermolecular potential energy of dipolar gases from heat capacity data, D. R. Douslin and Guy Waddington—2453(L)
Interrelation of gaseous viscosity, self-diffusion, and isotopic thermal diffusion, Eugene M. Holleran—847
Ion-atom interchange in air, R. F. Potter—2462(L)
Ionization and dissociation processes in the vapors of lithium chloride, sodium chloride, and potassium chloride, Robert M. Hobson—2463(L)
Joshi effect in relation to intermittent pulses, M. B. Deshimukh—593(L)
Knudsen flow through a circular capillary, W. C. DeMarcus and E. H. Hopper—1344(L)
Line broadening and dielectric relaxation in compressed gases, C. S. E. Phillips—2388
Measurement of the molecular weights of vapors at high temperature. II. The vapor pressure of germanium and the molecular weight of germanium vapor, Alan W. Searchy and Robert D. Freeman—88
Mechanism of potential inversion of the Joshi effect, S. R. Mohanty—1533
Method of calculating cross sections for molecular collisions, Ernest Bauer—1087
Method of extrapolating equation-of-state data to higher temperatures, Roger A. Strehlow—1562(L)
Molecular clusters in imperfect gases, Terrell L. Hill—617
Note on imperfect gas theory, Frank E. Harris—1965(L)
Ozone theory in the troposphere, F. N. Frenkiel—2440 (L)
Photovariation of conductivity in non-self-maintained region of a low-frequency electric discharge, N. A. Ramaiah, B. D. Khosla, and H. C. Gaur—212(L)
Preliminary data on photoionization efficiencies and cross sections in C_2H_4 and C_2H_2, W. C. Walker and G. L. Weissler—1547(L)
Pressure broadening of linear molecules. II. Theory, William V. Smith, H. A. Lackner, and A. B. Volkov—389
Quantitative comparison of the approximate dielectric polarization theories with an exact one at low densities, A. D. Buckingham—2370
Quenching of NaI fluorescence by H_2, HCl, CO_2, and H_2O, Howard G. Hanson—1391
Rate of evaporation of graphite, R. J. Thorn and G. H. Winslow—1369(L)
Reactions of nitrogen activated by electric discharge, R. N. Varney—866
Scattering of high velocity neutral particles. V. Neon-neon, I. Amdur and E. A. Moses—415
Second approximation to the thermal diffusion factor on the Lennard-Jones 12:6 model, S. C. Saxena and B. N. Srivastava—1571
Stabilization of energy-rich molecules. I. Energy transfer with hydrogen, M. Boudart and J. T. Dubois—223
Streamer and brush flames excited by active nitrogen in the rare gases, Carl Kenty—1556(L)
Successive excitation by low-energy electrons: application to electric discharge in methane, Milton Burton and John L. Magee—2195(L)
Successive excitation by low-energy electrons: general principle, Milton Burton and John L. Magee—2194(L)
Thermal conductivities of organic vapor mixtures, L. A. Bennett and R. G. Vines—1587
Thermodynamic properties of ideal gaseous methanol, E. V. Ivash, James C. M. Li, and Kenneth S. Pitzer—1814
Vibrational relaxation times of diatomic molecules and rocket performance, H. C. Penny and Henry Aroeste—1281

Heat Capacity (see **Thermodynamic Properties**)
High Pressures
Effect of pressure on self-diffusion in white phosphors, Norman H. Nachtrieb and A. W. Lawson—1193
New modification of solid nitrogen, C. A. Swenson—1963 (L)
Hindered Rotation (see **Rotation**)

Infrared Spectra (see **Absorption Spectra**)
Isotopes
Binary diffusion of similar or isotopic molecules in three component systems, William P. Senett, Fred Gollob, and T. I. Taylor—1679
Concentration of nitrogen-15 by chemical exchange in a thermal diffusion column, W. Spindel and T. I. Taylor —1318
Kinetics of the isotope exchange reaction of fluorine with hydrogen fluoride, Richard M. Adams, Richard B. Bernstein, and Joseph J. Katz—1622
Origin of the electronically excited C_2 radical in hydrocarbon flames, R. E. Ferguson—2085
Separation of nitrogen isotopes by chemical exchange between NO and HNO_3, W. Spindel and T. I. Taylor—981(L)
Simplified calculation of isotopic exchange half-time, Leonard R. Darbee—1349(L)
Treatment of isotopic exchange reactions having complex mechanisms, R. A. Marcus—1107
Isotope Effects
Binary diffusion of similar or isotopic molecules in three component systems, William P. Senett, Fred Gollob, and T. I. Taylor—1679
C^{13} isotope effect in the thermodecomposition of ethyl bromide, Henry L. Friedman, Richard B. Bernstein, and Harry E. Gunning—109
Comments on the C^{13} isotope effect in the thermodecomposition of ethyl bromide, Henry L. Friedman, Richard B. Bernstein, and Harry E. Gunning—1722(L)
Dielectric properties of solid hydrogen and deuterium halides, S. Havriliak, Jr. and R. H. Cole—2455(L)
Effect of isotopic substitution on the mass spectra of molecules. II. Oxygen and carbon dioxide, experimental, Oliver A. Schaeffer and Henry R. Owen—1305
Effect of isotopic substitution on the mass spectra of molecules. III. Carbon dioxide, theoretical interpretation, Oliver A. Schaeffer—1309
Examination of the isotope effect in the condensation of *o*-benzoylbenzoic acid-carboxyl-C^{14} to anthraquinone-9-C^{14}, Gus A. Ropp—2196(L)
Far ultraviolet absorption spectra of ethylene and ethylene-d_4, P. G. Wilkinson and R. S. Mulliken—1895
Fermi resonance and isotope effect in the infrared spectrum of carbon tetrachloride, P. Tuomikoski—2083
Fine structure of olefine deuteration, Tominaga Keii—210(L)
High-speed machine computation of ideal gas thermodynamic functions. II. The diatomic free radicals of the isotopic hydrides of oxygen and sulfur, Lester Haar and A. S. Friedman—869
Infrared absorption spectra of monodeuterated pyridines, F. Allan Andersen, Børge Bak, Svend Brodersen, and John Rastrup-Andersen—1047
Infrared adsorption spectrum of deuterated polyvinyl alcohol film, Hiroyuki Tadokoro, Syûzô Seki, and Isamu Nitta—1351(L)
Infrared spectra and structure of NaOH and NaOD, William R. Busing—933
Infrared spectrum and molecular constants of CD_4, Hoyt M. Kaylor and Alvin H. Nielsen—2139
Infrared spectrum of trideuterosilane and the structure of the silane molecule, D. R. J. Boyd—922
Infrared studies of naphthalene and naphthalene-d_8, Willis B. Person, George C. Pimentel, and Otto Schnepp—230
Internal barrier height of methyl mercaptan, Ralph W. Kilb—1736(L)
Interpretation of the infrared spectrum of a molecular crystal: naphthalene, George C. Pimentel, A. L. McClellan, Willis B. Person, and Otto Schnepp—234
Interrelation of gaseous viscosity, self-diffusion, and isotopic thermal diffusion, Eugene N. Holleran—847
Measurement of bond moments in C_2H_2 and C_2D from infrared intensities, Edward C. Wingfield and Joseph W. Straley—731
Methyl alcohol. I. Microwave spectrum, Putcha Venkateswarlu, Howard D. Edwards, and Walter Gordy—1195
Methyl alcohol. II. Molecular structure, Putcha Venkateswarlu and Walter Gordy—1200
Microwave spectrum and molecular structure of methylchloroacetylene, C. C. Costain—2037
Microwave spectrum of cyclopropylchloride, James P. Friend, Robert F. Schneider, and B. P. Dailey—1557(L)
Microwave spectrum of imine-deuterated ethylenimine, T. E. Turner, Verna C. Fiora, and W. M. Kendrick—1966 (L)
Note on the X-band microwave spectrum of heavy water, D. W. Posener—1728(L)
Oxygen-18 isotope effect in the reaction of oxygen with copper, Richard B. Bernstein—1797
Photochemical decomposition of aqueous permanganate ion, George Zimmerman—825
Proof of the staggered configuration of ethyl chloride, R. S. Wagner and B. P. Dailey—1355(L)
Pure rotational spectra of DBr, HI, and DI in the spectral region between 45 and 170 microns, E. D. Palik—217 (L)
Radiation induced equilibrium of hydrogen-deuterium mixtures, S. O. Thompson and O. A. Schaeffer—759(L)
Rates of isotopic reactions between methyl and hydrogen, J. C. Polanyi—1505
Semiempirical study of the H_2Cl transition complex through the use of hydrogen isotope effects, Jacob Bigeleisen and Max Wolfsberg—1535
Statistical mechanics of isotopic systems with small quantum corrections. I. General considerations and the rule of the geometric mean, Jacob Bigeleisen—2264
Structure and barrier height of methyl mercaptan from microwave data, N. Solimene and B. P. Dailey—124
Structure and potential barrier to hindered rotation in methyl alcohol, Jerome D. Swalen—1739(L)
Tritium isotope effect in the isomerization of cyclopropane, Ralph E. Weston, Jr.—988(L)
Vapor absorption spectra of light and heavy naphthalenes at 2900–2500 A, H. Sponer and C. D. Cooper—646
Vapor pressure of HT, Jacob Bigeleisen and Eugene C. Kerr—2442(L)
Vibrational assignment and thermodynamic properties of naphthalene, A. L. McClellan and George C. Pimentel—245
Vibrational energy of deuterium cyanide, Harry C. Allen, Jr., Eugene D. Tidwell, and Earle K. Plyler—1356(L)
Vibrational spectra and assignment of naphthalene and naphthalene-*d*-8, Ellis R. Lippincott and Edward J. O'Reilly, Jr.—238
Vibrational spectra and structure of cyclopropane and cyclopropane-d_6, A. W. Baker and R. C. Lord—1636
Vibrational spectra of molecules and complex ions in crystals. VIII. The infrared spectrum of a mixed crystal of 1-deutero-ammonia and 2-deutero-ammonia, F. P. Reding and D. F. Hornig—1053

Intensities of Spectra

Anomalous infrared intensity in ethylene, D. F. Eggers, Jr. —221(L)

Determination of absolute intensities from single- and multiple-path absorption measurements, S. S. Penner and H. Aroesto—2244

Infrared intensities and bond moments in formaldehyde, L. C. Hisatsune and D. F. Eggers, Jr.—487

Infrared intensities in liquid and gas phases, S. R. Polo and M. Kent Wilson—2376

Infrared intensity of the C − D stretch of chloroform-*d* in various solvents, Charles M. Huggins and George C. Pimentel—896

Measurement of bond moments in C_2H_2 and C_2D from infrared intensities, Edward C. Wingfield and Joseph W. Straley—731

Microwave spectrum of ethyl bromide, R. S. Wagner, N. Solimene, and B. P. Dailey—599(L)

Nature of the hydrogen-bond. II. The effect of hydrogen-bonding and other solute-solvent interactions upon the shape and intensity of the infrared OH band of phenol, Hiroshi Tsubomura—2130

Relative intensities of anthracene and naphthacene emissions under cathode-ray, ultraviolet, and x-ray excitations, B. D. Saksena and L. M. Pant—987(L)

Vibrational intensities. V. BrCl and ICl, Wendell V. F. Brooks and Bryce L. Crawford, Jr.—363

Vibrational intensities in halogenated methanes. I. Methylene chloride, Joseph W. Straley—2183

Kinetics of Reaction

Absolute thermal decomposition rates of solids. Part II. The vacuum sublimation rate of molecular crystals, Robert D. Schultz and Albert O. Dekker—2133

Acid catalysis in the thermal decomposition of ammonium nitrate, Bernard J. Wood and Henry Wise—693

Adsorption of strontium and of barium on tungsten, George E. Moore and H. W. Allison—1609

Catalytic activity induced by neutron irradiation of inert silica, P. B. Weisz and E. W. Swegler—1567

Charge transfer reactions in monatomic and diatomic gases, J. A. Dillon, Jr., W. F. Sheridan, H. D. Edwards, and S. N. Ghosh—776

Chemical and photochemical studies on 6,8-thioctic acid and 1,2-dithiolane (trimethylene disulfide), R. B. Whitney and Melvin Calvin—1750

C^{13} isotope effect in the thermodecomposition of ethyl bromide, Henry L. Friedman, Richard B. Bernstein, and Harry E. Gunning—109

Comments on the C^{13} isotope effect in the thermodecomposition of ethyl bromide, Henry L. Friedman, Richard B. Bernstein, and Harry E. Gunning—1722(L)

Comments on the frontier orbital theory of the reactions of conjugated molecules, H. H. Greenwood—756(L)

Complexities in the reaction system: $H_2+I_2=2HI$, Sidney W. Benson and E. Srinivasan—200

Contribution to the theory of fast reaction rates, R. De Vogelaere and M. Boudart—1236

Decomposition of ammonia photosensitized by mercury $6(^3P_1)$ atoms, C. C. McDonald and H. E. Gunning—532

Decomposition of carbon dioxide by ionizing radiation. Part I, P. Harteck and S. Dondes—902

Decomposition of methyl alcohol by Co^{60} gamma radiation, William R. McDonell and Sheffield Gordon—208(L)

Decomposition of methyl alcohol-water solutions by Co^{60} gamma radiation, William R. McDonell—208(L)

Dispersion and absorption of sound in imperfect gases in general chemical equilibrium and its application to chemical kinetics, Daisaku Tabuchi—2033

Displacement of the maximum in the concentration-time diagram of two first order consecutive reactions, M. Tâlât-Erben—2445(L)

Dissociation by impacts of the second kind, W. E. Groth and O. Oldenberg—729

Dissociation of water vapor in electric discharge, E. A. Secco—1734(L)

Effect of crystal orientation on the activation energy for the catalytic decomposition of formic acid on silver, H. M. C. Sosnovsky—1486

Effect of initial temperature on minimum spark-ignition energy, I. R. King and H. F. Calcote—2444(L)

Effect of pile irradiation on sodium chlorate, L. J. Sharman and K. J. McCallum—597(L)

Effect of proton irradiation upon the rate of solution of Fe_2O_3 in hydrochloric acid, M. Simnad and R. Smoluchowski—1961(L)

Effect of variations in source intensity on the alpha induced decomposition of ammonia, Benjamin P. Burtt and Theodore Baurer—466

Emission and two-body recombination in bromine, Howard B. Palmer—2449(L)

Examination of the isotope effect in the condensation of *o*-benzoylbenzoic acid-carboxyl-C^{14} to anthraquinone-9-C^{14}, Gus A. Ropp—2196(L)

Fine structure of olefine deuteration, Tominaga Keii—210(L)

Flame structure studies. III. Gas sampling in a low-pressure propane-air flame, Raymond Friedman and Joseph A. Cyphers—1875

Gas phase oxidation of formaldehyde, Milton D. Scheer—1357(L)

Heterogeneous exchange between chemisorbed halogen and methyl halide, R. Coekelbergs, A. Frennet, P. A. Gosselain, and M. J. van der Venne—1731(L)

Hydrogen-bromine reaction in a nonsteady state, Doyle Britton and Norman Davidson—2461(L)

Hydrogen peroxide photocatalyzed reaction of hydrogen and oxygen, David H. Volman—2458(L)

Infrared spectra of intermediate species in the formation of ammonium azide from hydrazoic acid, David A. Dows, George C. Pimentel, and Eric Whittle—1606

Inhibition of the $NO - N_2O_5$ reaction by NO_2, I. C. Hisatsune, A. P. McHale, R. E. Nightingale, D. L. Rotenberg, and Bryce Crawford, Jr.—2467(L)

Ion-atom interchange in air, R. F. Potter—2462(L)

Ion pair yields in the x-ray decomposition of hydrogen bromide in rare gas atmospheres, Edward G. Zubler, William H. Hamill, and Russell R. Williams, Jr.—1263

Iron catalyzed reaction between nitrosyl disulfonate and hydroxylamine monosulfate ions, William J. Ramsey and Don M. Yost—2153

Kinetics of coordinate bond formation. II, G. B. Kistiakowsky and R. Williams, 334

Kinetics of the isotope exchange reaction of fluorine with hydrogen fluoride, Richard M. Adams, Richard B. Bernstein, and Joseph J. Katz—1622

Kinetics of the thermal *cis-trans* isomerization of dideuteroethylene, John E. Douglas, B. S. Rabinovitch, and F. S. Looney—315

Logarithmic rate law in chemisorption and oxidation, P. T. Landsberg—1079

Mass spectrometric detection of radicals in the mercury photosensitized decomposition of acetone, J. B. Farmer, F. P. Lossing, D. G. H. Marsden, and E. W. R. Steacie —1169(L)

Mechanism of the catalytic activation of molecular hydrogen by metal ions, J. Halpern and E. Peters—605(L)

Mechanism of the conversion of *cis* to *trans* modifications of the unsaturated higher fatty acid esters by nitrogen dioxide, N. A. Khan—2447(L)

Mechanism of the pyrolysis of ethyl bromide. A note on a paper by Friedman, Bernstein, and Gunning, Allan Maccoll and P. J. Thomas—1722(L)
Mercury photosensitized decomposition of nitrous oxide, R. J. Cvetanović—1203
Mercury sensitized decomposition of ethylene, R. J. Cvetanović and A. B. Callear—1182(L)
Method of integrating the rate equations for free radical initiated polymerizations, John P. Howe—899
Methyl and phenyl affinities of aromatic compounds, D. H. Hey and G. H. Williams—757(L)
Modified bond-eigenfunction method of calculating potential energy surfaces and its application to the reaction $H+H_2 \rightarrow H_2+H$, Iwao Yasumori—1566(L)
New method for the kinetic study of fast electrode reactions, Talivaldis Berzins and Paul Delahay—972(L)
New method of drawing the potential energy surface, Shin Sato—592(L)
Nitric oxide catalyzed *cis-trans* isomerization of dideuteroethylene, B. S. Rabinovitch and F. S. Looney—2439(L)
OH, HO_2, and H_2O_2 production in the reaction of atomic hydrogen with molecular oxygen, S. N. Foner and R. L. Hudson—1974(L)
O − O bond dissociation energies in propionyl and butyryl peroxides, A. Rembaum and M. Szwarc—909
Organic radiation reactions with dissolved radioactive iodine, Warren W. Miller, Edward P. Rack, Elliot Burrell, and Conrad N. Trumbore—2457(L)
Origin of the electronically excited C_2 radical in hydrocarbon flames, R. E. Ferguson—2085
Oxidation of methane with nitrogen dioxide, Marvin L. Bromberg and H. Austin Taylor—2399
Oxygen-18 isotope effect in the reaction of oxygen with copper, Richard B. Bernstein—1797
Photochemical decomposition of aqueous permanganate ion, George Zimmerman—825
Photochemical studies of the porphyrins. III. Photoreduction of a porphyrin by benzoin, Gilbert R. Seely and Melvin Calvin—1068
Photolysis of acetic anhydride, Herman Burwasser and H. Austin Taylor—2295
Photolysis of hexafluoroazomethane, J. R. Dacey and D. M. Young—1302
Photosensitized decomposition of acetyl peroxide, C. Luner and M. Szwarc—1978(L)
Potential energy surface of the system of three atoms, Shin Sato—2465(L)
Production of excited hydroxyl radicals in the hydrogen atom-ozone reaction, J. D. McKinley, Jr., David Garvin, and M. J. Boudart—784
Pyrolysis of acetone and the heat of formation of acetyl radicals, M. Szwarc and J. Watson Taylor—2310
Quantum yield of a cadmium sulfide photovoltaic cell, R. E. Marburger, D. C. Reynolds, L. L. Antes, and R. S. Hogan—2448(L)
Radiation chemistry of aqueous benzene solutions, J. G. Baxendael and D. Smithies—604(L)
Radiation induced equilibrium of hydrogen-deuterium mixtures, S. O. Thompson and O. A. Schaeffer—759(L)
Rate of the gaseous reactions, $X^+ + YH = XH^+ + Y$, D. P. Stevenson and D. O. Schissler—1353(L)
Rates of isotopic reactions between methyl and hydrogen, J. C. Polanyi—1505
Reaction between nitric and nitrous oxide, Frederick Kaufman and John R. Kelso—602(L)
Reaction of methyl radicals with methane and ethane, M. H. J. Wijnen—1357(L)
Reaction of methyl radicals with nitric oxide, W. A. Bryce and K. U. Ingold—1968(L)
Reaction of oxygen atoms with ethylene, R. J. Cvetanović —1375
Reactions of Br^{80} (18-min) produced by isomeric transition of Br^{80m} (4.58-hr) with benzene and methylated benzenes, T. A. Carlson and W. S. Koski—2410
Reactions of $Hg(^3P_1)$ with toluene, A. H. Sehon and B. deB. Darwent—822
Reactions of nitrogen activated by electric discharge, R. N. Varney—866
Relative efficiencies of quenching of mercury resonance radiation and their temperature independence. Mechanism of mercury photosensitized decomposition of saturated hydrocarbons, R. J. Cvetanović—1208
Remarks on "nitric oxide catalyzed *cis-trans* isomerization of dideuteroethylene," Harden M. McConnell—2440(L)
Role of water in oxidation-reduction reactions, W. L. Reynolds and R. W. Lumry—2460(L)
Semiempirical study of the H_3Cl transition complex through the use of hydrogen isotope effects, Jacob Bigeleisen and Max Wolfsberg—1535
Series solutions for the rate equations of complex reaction mechanisms, J. C. Morrow—2452(L)
Short-lived species from the photolysis of aqueous alkali halide and halogen solutions, L. I. Grossweiner and M. S. Matheson—2443(L)
Simplified calculation of isotopic exchange half-time, Leonard R. Darbee—1349(L)
Singlet-triplet excitation energy of aromatic compounds and their reactivities, M. Szwarc—204(L)
Space-time yield and reaction rate, George J. Janz and Samuel C. Wait, Jr.—1550(L)
Spectrum of the carbon monoxide-oxygen explosion. I. The visible spectrum, R. H. Knipe and Alvin S. Gordon —2097
Steady-state burning of a liquid droplet. I. Monopropellant flame, Jack Lorell and Henry Wise—1928
Studies of the interaction between stable molecules and atoms. V. Molecular orbital approach to the $H+H_3$ reaction, Virginia Griffing and Joseph T. Vanderslice—1039
Studies of the interaction between stable molecules and atoms. I. A molecular orbital theory of the activation energy between molecules and atoms, Virginia Griffing —1015
Studies on solid-state reactions with radiotracers, R. Lindner—410(L)
Study of chemical reaction mechanisms with molecular beams. The reaction of K with HBr, Ellison H. Taylor and Sheldon Datz—1711
Thermal decomposition of nitric oxide, Frederick Kaufman and John R. Kelso—1702
Thermal stability of *ortho-*, *para-*, and *meta*-xylyl radicals and the formation of quinodimethanes, J. B. Farmer, D. G. H. Marsden, and F. P. Lossing—403(L)
Treatment of isotopic exchange reactions having complex mechanisms, R. A. Marcus—1107
Tritium-carbon monoxide reaction, David L. Douglas—1558(L)
Tritium isotope effect in the isomerization of cyclopropane, Ralph E. Weston, Jr.—988(L)
Ultrasonic investigation of a chemical kinetics problem: The dissociation of magnesium sulfate, David Alan Bies —428
Vacuum photolysis of silver bromide and silver chloride, George W. Luckey—882

Large Molecules (see **Polymers**)
Light Scattering
Depolarization of light scattered by polymolybdates in acid and basic solutions, P. K. Katti and V. N. Wanchoo—760(L)
Determination of particle size and refractive index near the turbidity maximum in monodisperse suspensions of spherical particles. Wilfried Heller—342
Excluded volume effect on light scattering of the coiled linear macromolecule, Anton Peterlin—2464(L)
Light scattering by water, J. Kraut and W. B. Dandliker—1544(L)
Light scattering from very long rod-like particles and an application to polymerized fibrinogen, Edward F. Casasa—596(L)
Rayleigh's ratio (absolute turbidity levels) for benzene and carbon tetrachloride. II. Corrections, Robert F. Stamm and Peter A. Button—2456(L)
Liquids
Anomalies in the data on coexistent densities in the region of the critical temperature, Sidney W. Benson and Charles S. Copeland—1180(L)
Application of the kinetic theory of liquids of Born and Green to the problem of the calculation of the volume viscosity, R. E. Nettleton—1560(L)
Contraction of germanium on melting, R. C. Sangster and J. N. Carman, Jr.—206(L)
Critical constants of *n*-butanol, R. Singh and L. E. Shemilt—1370(L)
Critical isotherm and the equation of state of liquid-vapor systems, B. Widom and O. K. Rice—1250
Dielectric constant of polar liquids at high field strengths, F. Booth—453
Dielectric properties of liquid butyl alcohols, Walter Dannhauser and Robert H. Cole—1762
Dielectric properties of liquid ethanol and 2-propanol, F. X. Hassion and R. H. Cole—1756
Dielectric properties of methanol and methanol-*l*-propanol solutions, Donald J. Denny and Robert H. Cole—1767
Dislocation model of liquids, Jerome Rothstein—218(L)
Electrochemical polarization in isopropyl ether, John A. Rider—61
Entropy of mixing of liquid solutions, A. Englert-Chwoles—1168(L)
Examination of the expression, $T(dP/dT)_v+B=f(v)$, for a number of high purity liquid hydrocarbons, W. G. Cutler, W. Webb, and R. W. Schiessler—2466(L)
Experimental determination of the thickness of weak shock fronts in liquids, W. N. Flook, Jr., and D. F. Hornig—816
Free convection between two vertical plates in the presence of an inclined temperature gradient, Stephen Prager—1742(L)
Heat of evaporation of helium, Johan van Dranen—213(L)
Hydrodynamic frictional and diffusion coefficients in idealized liquids. I. The collisional contribution, F. C. Collins and H. Raffel—1454
Infrared spectra of liquid anhydrous hydrogen fluoride, liquid sulfur dioxide, and hydrogen fluoride-sulfur dioxide solutions, Robert H. Maybury, Sheffield Gordon, and Joseph J. Katz—1277
Internal pressure of carbon tetrachloride between $-7°$ and 70°, Harm Benninga and Robert L. Scott—1911
Light scattering by water, J. Kraut and W. B. Dandliker—1544(L)
Liquid metals. II. X-ray diffraction by liquid mercury and the distance of closest atomic approach, Joseph S. Lukesh, William H. Howland, Leo F. Epstein, and Marion D. Powers—1923
Liquid surface tension measurements by analysis of solid-state curvatures; the surface tension of liquid germanium, R. C. Sangster and J. N. Carman, Jr.—1142
Luminescence produced as a result of intense ultrasonic waves, Virginia Griffing and Daniele Sette—503
Magnitude of diffusive displacements in liquids, Richard M. Noyes—1982(L)
Molar sound velocity in liquids and the liquid state, Herman I. Leon—983(L)
Overvoltages in melted electrolytes, R. Piontelli and G. Sternheim—1971(L)
Phase diagram of liquid ozone-oxygen system, Callaway Brown, Abraham W. Berger, and Charles K. Hersh—1340
Phenomenological theory of the Soret diffusion, James A. Bierlein—10
Potential energy of a molecule in a liquid, L. A. Girifalco—1728(L)
Problem of molecular association in liquid boron trifluoride, T. H. S. Higgins and C. J. G. Raw—606(L)
Properties of substances at the critical point, Johan van Dranen—218(L)
Proton chemical shift in ammonia, B. N. Bhar—1972(L)
Proton magnetic resonance in liquid crystals—orientation effects, P. L. Jain, J. C. Lee, and R. D. Spence—878
Radial distribution function calculated by the Monte-Carlo method for a hard sphere fluid, B. J. Alder, S. P. Frankel, and V. A. Lewison—417
Rayleigh's ratio (absolute turbidity levels) for benzene and carbon tetrachloride. II. Corrections, Robert F. Stamm and Peter A. Button—2456(L)
Relation between isotherms and coexistence curve in the critical region, O. K. Rice—169
Resistance in a liquid-liquid interface. III. The effect of molecular properties, J. H. Sinfelt and H. G. Drickamer—1095
Sedimentation velocity and diffusion of a solvated substance, Ping-Yao Cheng—191
Self-diffusion coefficient and viscosity in liquids, James C. M. Li and Pin Chang—518
Self-diffusion of ions in molten electrolyte under the influence of an electric field, Ling Yang and M. Simnad—1295
Self-diffusion of liquid sodium, R. E. Mayer and N. H. Nachtrieb—1851
Shape of the coexistence curve in the perfluoromethylcyclohexane-carbon tetrachloride system, Ram Gopal and O. K. Rice—2428
Shape of the coexistence curve near the critical temperature, O. K. Rice—164
Shape of the consolute curve and its consequences for the theory of binary liquid mixtures of nonelectrolytes, F. Kohler—1398
Simultaneous transitions in liquids. A new kind of molecular spectrum, J. A. A. Ketelaar and F. N. Hooge—1549(L)
Simultaneous vibrational transitions in liquids, J. A. A. Ketelaar and F. N. Hooge—749(L)
Spherical interface. II. Molecular theory, Frank P. Buff—419
Structure of the configuration integral in the statistical mechanics of pure fluids, B. Widom—560
Surface tension and viscosity of liquids, J. H. Simons and W. H. Wilson—613
Surface tension of ether and pentane, T. O. Jeffries, M. Derrick, and B. Musgrave—1730(L)
Surface tension temperature relation, Shashanka Shekhar Mitra and Nitish Kumar Sanyal—1737(L)
System of ozone-oxygen, A. C. Jenkins, F. S. DiPaolo, and C. M. Birdsall—2049

System pyridine—pyrrole and the association of pyrrole, Serge N. Vinogradov and Robert H. Linnell—93
Temperature dependence of viscosity and its relation to vapor pressure for associated liquids, L. A. Girifalco —2446(L)
Theory of normal paraffin liquids, Michio Kurata and Sin-iti Isida—1126
Theory of thermal diffusion in liquids, E. L. Dougherty, Jr., and H. G. Drickamer—295
Variation of surface tension and heat of vaporization with temperature, S. T. Bowden—2454(L)
Viscosity anomaly of supercooled liquids, Gerald W. Sears —604(L)

Magnetic Resonance
Analysis of spin-spin multiplets in nuclear magnetic resonance spectra, H. M. McConnell, A. D. McLean, and C. A. Reilly—1152
Chemical shifts of nitrogen, B. E. Holder and M. P. Klein —1956(L)
Concentration dependence of chemical exchange and NMR Multiplet structure in water-ethanol mixtures, Irving Weinberg and John R. Zimmerman—748(L)
Dirac vector model for electron coupled nuclear spin interactions, Harden M. McConnell—2454(L)
Electron exchange coupling of nuclei in aromatic systems, H. S. Gutowsky, L. H. Meyer, and D. W. McCall— 982(L)
Electron spin resonance of semiquinones, John E. Wertz and Juana L. Vivo—2441(L)
Hindered rotation of water molecules of hydration in $Mg(H_2O)_6Cl_2$ and $Mg(H_2O)_6Br_2$, Tunahiko Sidel and Syukuro Yano—1554(L)
Ionization of strong electrolytes. IV. Nuclear magnetic resonance and dissociation of trifluoroacetic acid, G. C. Hood, O. Redlich, and C. A. Reilly—2229
Line width transition of the proton magnetic resonance in polymers, Akira Odajima, Junkichi Sohma, and Mitsuru Koike—1959(L)
Molecular association and proton resonance in propionic acid, B. N. Bhar and G. Lindstrom—1958(L)
Molecular orbital approximation to electron-spin coupled nuclear spin-spin interaction in molecules, Harden Mc-Connell—760(L)
Multiple thio-radicals in sulfuric acid solution, John E. Wertz and Juana L. Vivo—2193(L)
Nuclear hyperfine structure in the paramagnetic resonance absorption of triarylaminium perchlorates, O. R. Gilliam, Robert I. Walter, and V. W. Cohen—1540(L)
Nuclear magnetic resonance in concentrated aqueous electrolytes, James N. Shoolery and Berni J. Alder—805
Nuclear magnetic resonance spectra of methyl pyridines, Edward B. Baker—1981(L)
Nuclear magnetic resonance: structure of the amino group I, R. A. Kromhout and W. G. Moulton—1673
Nuclear spin-spin coupling in substituted benzenes, Edward B. Baker—984(L)
Observation of chemical shifts of O^{17} nuclei in various chemical environments, H. E. Weaver, B. M. Tolbert, and R. C. La Force—1956(L)
Observation of the semiquinone of benzoquinone, Scott Blois—1351(L)
Paramagnetic absorption of potassium complexes of aromatic compounds, Ricardo C. Pastor and John Turkevich —1731(L)
Paramagnetic resonance absorption in single crystals of diphenylpicrylhydrazyl at low temperatures, L. S. Singer and C. Kikuchi—1738(L)
Paramagnetic resonance absorption in some Cr^{+3} complexes, L. S. Singer—379
Paramagnetic resonance from broken carbon bonds, J. E. Bennett, D. J. E. Ingram, and J. G. Tapley—215(L)
Paramagnetic resonance in semiquinone ions of substituted *o*-benzoquinones, Raymond Hoskins—1975(L)
Paramagnetic resonance in solutions of oxidized pyrogallol, R. H. Hoskins and B. R. Loy—2461(L)
Paramagnetic resonance of color centers in $NaNO_3$, William B. Ard, Jr.—1967(L)
Paramagnetic resonance of methyl substituted *p*-benzosemiquinones, Balu Venkataraman and George K. Fraenkel —588(L)
Paramagnetic resonance of NaCl crystals containing additions of manganese impurity, Keichi Oshima, Hidetaro Abe, Hiroshi Nagano, and Makoko Nagusa—1721(L)
Paramagnetic resonance of x-rayed Teflon, E. E. Schneider —978(L)
Paramagnetic resonance of x-irradiated Teflon effects of absorbed oxygen, William B. Ard, Howard Shields, and Walter Gordy—1727(L)
Paramagnetic species in gamma-irradiated ice, Max S. Matheson and Bernard Smaller—521
Proton chemical shift in ammonia, B. N. Bhar—1972(L)
Proton magnetic resonance in liquid crystals—orientation effects, P. L. Jain, J. C. Lee, and R. D. Spence—878
Proton magnetic resonance of the CH_3 group. III. Reorientation mechanism in solids, J. G. Powles and H. S. Gutowsky—1692
Proton magnetic resonance studies of chloroform in solution: evidence for hydrogen bonding, Charles M. Huggins, George C. Pimentel, and James N. Shoolery—1244
Proton resonance in barium chlorate monohydrate, R. D. Spence—1166(L)
Pre-examination of two free radicals, John E. Wertz, C. F. Koelsch and Juana L. Vivo—2194(L)
Restricted rotation in amides as evidenced by nuclear magnetic resonance, W. D. Phillips—1363(L)
Study of nuclear resonance of the supercooled rotational transition of 2,3,-dimethylbutane, Herbert Segall and J. G. Aston—528

Magnetic Suspectibilities
Dependence of the constants in the Curie-Weiss law on exchange, C. M. Herzfeld—398(L)
Magnetic properties of uranium hydride, Dieter M. Gruen —1708
Magnetic susceptibilities of some uranium (IV) compounds, Clyde A. Hutchison, Jr., and Charles M. Herzfeld—1650
Magnetic susceptibility and free energy of graphite bromide, G. R. Hennig and J. D. McClelland—1431
Magnetic susceptibility of liquid ozone-oxygen mixtures, Callaway Brown, Charles K. Hersh, and Abraham W. Berger—103
Magnetism on optical excitation of maganese-activated zinc sulfide phosphors, Keichi Oshima and Hiroshi Nagano—1473
Measurement of the magnetic susceptibility of manganese nitride Mn_5N_2 by a microvibration method, Y. L. Yousef, R. K. Girgis, and H. Mikhail—959

Mass Spectra
Appearance potential studies. II. Nitromethane, Richard J. Kandel—84
Dissociation energies of SrO and MgO molecules, Richard F. Porter, William A. Chupka, and Mark G. Inghram —1347(L)
Effect of isotopic subtsitution on the mass spectra of molecules. III. Carbon dioxide, theoretical interpretation, Oliver A. Schaeffer—1309
Effect of isotopic substitution on the mass spectra of molecules. II. Oxygen and carbon dioxide, experimental, Oliver A. Schaeffer and Henry R. Owen—1305

Mass Spectra (continued)
Heat of dissociation of N_2, John F. Burns—1347(L)
Ionization potential of the free HO_2 radical and the $H-O_2$ bond dissociation energy, S. N. Foner and R. L. Hudson —1364(L)
Mass spectra of CuCl, CuBr, and CuI, H. M. Rosenstock, J. R. Sites, J. R. Walton, and Russell Baldock—2442(L)
Mass spectrometric detection of radicals in the mercury photosensitized decomposition of acetone, J. B. Farmer, F. P. Lossing, D. G. H. Marsden, and E. W. R. Steacie —1169(L)
Mass spectrometric investigation of active nitrogen, D. S. Jackson and H. I. Schiff—2333
Mass spectrometric study of barium oxide vapor, Mark G. Inghram, William A. Chupka, and Richard F. Porter—2159
Mass spectrometric study of gaseous species in the $Al-Al_2O_3$ system, Richard F. Porter, Paul Schissel, and Mark G. Inghram—339
Mass spectrometric study of gaseous species in the $Si-SiO_2$ system, Richard F. Porter, William A. Chupka, and Mark G. Inghram—216(L)
Mass spectrum of lithium iodide, Lewis Friedman—477
Metastable ions in mass spectra, H. M. Rosenstock, A. L. Wahrhaftig, and H. Eyring—2200(L)
OH, HO_2, and H_2O_2 production in the reaction of atomic hydrogen with molecular oxygen, S. N. Foner and R. L. Hudson—1974(L)
Pulse technique for measurement of the probability of formation and mobility of negative ions, K. B. McAfee, Jr.—1435
Rate of the gaseous reactions, $X^+ + YH = XH^+ + Y$, D. P. Stevenson and D. O. Schissler—1353(L)
Reinterpretation of electron impact experiments in CO, N_2, NO, and O_2, Homer D. Hagstrum—1178(L)
Water dimer and its relation to mass spectrometric measurement of C_3^+ in carbon vapor, W. A. Shupka and M. G. Inghram—203(L)

Mechanics, Classical
Calculated fundamental vibrational frequencies for bromosilanes, Hiromu Murata and Kiyoyasu Kawai—2451(L)
Calculation of the characteritsic values and vectors for vibrational secular equations, Takehiko Shimanouchi—2465(L)
Correlations between characteristic frequencies of the paraffins and the skeletal frequencies of some structurally analogous polar molecules, N. Sheppard and D. M. Simpson (Mrs. J. N. Agar)—582
Explicit derivation for the s vectors in the normal coordinate treatment of molecular vibrations, Robert J. Malhiot and Salvador M. Ferigle—30
New form of molecular potential function for use in molecular vibrational analysis, Emil J. Slowinski, Jr.—1933
Normal coordinates of n-dimethylaminodiborane, R. G. Breene, Jr.—97
Normal coordinate treatment of dimethyldiacetylene, Alfons Weber and Salvador M. Ferigle—579
Perturbation method for the calculation of molecular vibration frequencies. II. Generalization of the theory, P. W. Higgs—1448
Perturbation method for the calculation of molecular vibration frequencies. III. Skeletal stretching vibrations of normal paraffins, P. W. Higgs—1450
Pyramidal $XY(CH_3)_2$ molecular model classical vibration problem, Harold C. Beachell, Bernard Katlafsky, and James L. Lauer—2171
Theory of internal over-all rotational interactions. II. Hamiltonian for the nonrigid internal rotor, Daniel Kivelson—2230
Theory of internal over-all rotational interactions. III. Nonrigid asymmetric rotors, Daniel Kivelson—2236

Mechanics, Quantum
Alternative method for calculating SCF orbitals, H. Brion, R. Lefebvre, and C. M. Moser—1972(L)
Analysis of spin-spin multiplets in nuclear magnetic resonance spectra, H. M. McConnell, A. D. McLean, and C. A. Reilly—1152
Application to perturbation theory to the helium atom, J. M. Gerhauser and F. A. Matsen—1359(L)
Applications of the alternant molecular orbital method to six- and four-electron systems, Hiroyuki Yoshizumi and Takashi Itoh—412(L)
Approximate method of calculating vibrational frequencies of polyatomic molecules, S. Bratoz—159
Atom-stabilization energies in conjugated systems, Takeshi Nakajima—587(L)
Band widths in the spectra of manganous and other transition-metal complexes, L. E. Orgel—1824
Bending force constant of the carbon tetrafluoride molecule, Eiko Aihara 1563(L)
Calculation of energy levels for internal torsion and overall rotation. I. CH_3BF_2 type molecules, E. Bright Wilson, Jr., Chun Chia Lin, and David R. Lide, Jr.—136
Calculation of the characteristic values and vectors for vibrational secular equations, Takehiko Shimanouchi —2465(L)
Calculation of the dipole moment of the carbon-hydrogen bond in methane by the Thomas-Fermi method, Herbert Glazer and Howard Reiss—937
r-Centroids for diatomic molecules, R. W. Nicholls and W. R. Jarmain—1561(L)
Comments on the frontier orbital theory of the reactions of conjugated molecules, H. H. Greenwood—756(L)
Comparison of the approximate solutions for free neutral atoms, T. Tietz—1167(L)
Complete π-electron treatment of allyl radical and allyl ion, H. C. Lefkovits, Janice Fain, and F. A. Matsen—1690
Configuration interaction applied to the hydrogen molecule, Earl Callen—360
Delocalization and approximation methods, C. R. Mueller —1726(L)
Derivation of an internuclear function from a quantum-mechanical model, Ellis R. Lippincott—603(L)
Dipole velocity and dipole length matrix elements in π electron sytsems and configuration interaction, Max Wolfsberg—793
Dirac vector model for electron coupled nuclear spin interactions, Harden M. McConnell—2454(L)
Electronic population analysis on LCAO-MO molecular wave functions. I. R. S. Mulliken—1833
Electronic population analysis on LCAO-MO molecular wave functions. II. Overlap populations, bond orders, and covalent bond energies, R. S. Mulliken—1841
Electronic population analysis of LCAO-MO molecular wave functions. III. Effects of hybridization on overlap and gross AO populations, R. S. Mulliken—2338
Electronic population analysis on LCAO-MO molecular wave functions. IV. Bonding and antibonding in LCAO and valence-bond theories, R. S. Mulliken—2343
Electronic spectrum of the cycloheptatrienyl (Tropylium) ion, J. N. Murrell and H. C. Longuet-Higgins—2347
Electronic states of the naphthalene crystal, Donald S. McClure and Otto Schnepp—1575
Electronic structure and electronic spectra of ethylene-like molecules, Robert G. Parr and Rudolph Pariser—711

Electronic structure of metal *bis*-cyclopentadienyls, J. D. Dunitz and L. E. Orgel—954
π-Electronic structure of the HCN molecule, Kaoru Iguchi —1983
Electronic structures of transition-metal complexes, L. E. Orgel—1819
Electron interaction in hydrocarbon multiple ions, N. S. Hush and J. Blackledge—514
Energy calculations for the linear H_3^+ ion system, Roland S. Barker, J. Calvin Giddings, and Henry Eyring—344
Energy calculations of multiple hydrogen-atom systems by VB and MO methods, Roland S. Barker, Richard L. Snow, and Henry Eyring—1686
Evaluation of certain three-center integrals, J. R. Streetman—1348(L)
Exciton multiplicities, R. E. Merrifield—402(L)
Expansion of electronic wave functions of molecules in terms of "united-atom" wave functions, Tien Chi Chen —2200(L)
Free electron theory, finite differences, and LCAO molecular orbitals, Arthur A. Frost—310
Free-electron treatment of Diels-Alder's reaction, Sadham Basu—1548(L)
Ground state of the helium hydride ion, Arthur A. Evett —1169(L)
Interaction energy among three helium atoms, Arnold Shostak—1808
Interaction of an electron with a physical dipole, George S. Handler—1977(L)
Ionization potential of benzyl radical, Ikuzo Tanaka and Chimao Komatsu—976(L)
LACO MO study of the phenomenon of thermochromism, Sheldon L. Matlow—152
LCAO MO study of the structure of chlorophyll prototypes, Sheldon L. Matlow—673
Localizability of electrons in atoms and molecules—application to the study of the notion of shell and of the nature of chemical bonds, Raymond Daudel, Helene Brion, and Simone Odiot—2080
Lowest singlet excited levels of naphthalene, Carl M. Moser and Roland Lefebvre—598(L)
Lowest singlet excited levels of naphthalene. II. Roland Lefebvre and Carl Moser—754(L)
Magnetic shielding of nuclei in molecules by a variational method, James F. Hornig and Joseph O. Hirschfelder—474
Method of calculating cross sections for molecular collisions, Ernest Bauer—1087
Modified atomic orbital method. I. The electronic structure of the ethylene molecule, Kimio Ohno and Takashi Itoh —1468
Modified bond-eigenfunction method of calculating potential energy surfaces and its application to the reaction $H+H_2 \rightarrow H_2+H$, Iwao Yasumori—1566(L)
Modified valence-bond treatment of unsaturated and aromatic compounds, G. W. Wheland—79
Molecular calculations. I. An LCAO MO self-contained field treatment of the ground state of H_2O, Frank O. Ellison, and Harrison Shull—2348
Molecular calculations. II. Methods of approximation of molecular integrals, Frank O. Ellison—2358
Molecular calculations. III. A modification of the naive semiempirical MO method, Lionel Goodman and Harrison Shull—33
Molecular orbital approximation to electron-spin coupled nuclear spin-spin interaction in molecules, Harden McConnell—760(L)
Molecular orbitals for the hydrogen molecule ground state, Richard F. Wallis—1256
Natural spin orbitals for helium, Harrison Shull and Per-Olov Löwdin—1565(L)
New method of drawing the potential energy surface, Shin Sato—592(L)
Note on hyperconjugation, Y. I'Haya—1165(L)
Note on the branching condition in the one-dimensional free electron gas model, Arthur A. Frost—985(L)
Overlaps of trial functions for the hydrogen molecule. I. Ground-state character of the *1s* AO approximations, Jerry Braunstein and William T. Simpson—174
Overlaps of trial functions for the hydrogen molecule. II. Covalent and ionic character of H_2, Jerry Braunstein and William T. Simpson—176
Perturbation method for the calculation of molecular vibration frequencies. II. Generalization of the theory, P. W. Higgs—1448
Perturbation method for the calculation of molecular vibration frequencies. III. Skeletal stretching vibrations of normal paraffins, P. W. Higgs—1450
Pi-electron forces between conjugated double bond molecules, Eugene F. Haugh and Joseph O. Hirschfelder—1778
Potential energy surface of the system of three atoms, Shin Sato—2465(L)
Properties of the hydrogen bond. The role of lone pair electrons, W. G. Schneider—26
Pyramidal $XY(CH_3)_2$ molecular model classical vibration problem, Harold C. Beachell, Bernard Katlafsky, and James L. Lauer—2171
Quantum-mechanical properties of a one-dimensional system composed of hard spheres, Robert J. Rubin—1183
Remarks on the structure of NH_3 and PH_3 molecules, Wlodzimierz Kolos—1554(L)
Role of the continuum in superposition of configurations, Harrison Shull and Per-Olov Löwdin—1362(L)
SCF LCAO MO study of N_2, Charles W. Scherr—569
Selection rules for normal modes of chain molecules, Marvin C. Tobin—891
Semiempirical treatment of the pielectrons of some halogen substituted benzenes, R. H. Knipe—2089
Simplified SCF calculation for fulvene, Hideo Kon—1176(L)
Solution of the wave equation for internal rotation of two completely asymmetric molecules, Donald G. Burkhard and John C. Irvin—1405
Spectra of transition-metal complexes, L. E. Orgel—1004
$^4\Pi$ state of the O_2^+ molecule, A. Budo and I. Kovacs—751(L)
Structure of ethylene, Alexander Verrijn Stuart—1726(L)
Studies of the interaction between stable molecules and atoms. I. A molecular orbital theory of the activation energy between molecules and atoms, Virginia Griffing —1015
Studies of the interaction between stable molecules and atoms. II. Interaction between two He atoms, Virginia Griffing and J. F. Wehner—1024
Studies of the interaction between stable molecules and atoms. III. A molecular orbital treatment of the quadratic form of H_4, Virginia Griffing and Andrej Maček —1029
Studies of the interaction between stable molecules and atoms. IV. The energy of the linear H_4 complex, Virginia Griffing and Joseph T. Vanderslice—1035
Studies of the interaction between stable molecules and atoms. V. Molecular orbital approach to the $H+H_2$ reaction, Virginia Griffing and Joseph T. Vanderslice—1039
Theorems concerning the mutual polarizabilities of atoms and bonds in conjugated molecules, H. H. Jaffe—1

Mechanics, Quantum (continued)
Theoretical study of the ozone molecule, Inga Fischer-Hjalmars—411(L)
Theory of internal over-all rotational interactions. II. Hamiltonian for the nonrigid internal rotor, Daniel Kivelson—2230
Theory of the lower excited electronic states of the benzene crystal, David Fox and Otto Schnepp—767
Theory of the Taylor-Benedict-Strong effect, Gilbert Amat and Mark Goldsmith—1171(L)
Third-order conjugation energies, Y. I'Haya—1171(L)
Transformation useful in computing vibrational overlap integrals, Moody L. Coffman—585(L)
Use of molecular quantum-mechanical approximation exemplified in the energy calculation of the H_3^- system, Roland S. Barker, Henry Eyring, Don A. Baker, and Charles J. Thorne—1381
Zero-point energy of monatomic crystals, W. C. DeMarcus—602(L)

Mechanics, Statistical
Anomalous dielectric dispersion in polar macromolecular solutions, W. G. Hammerle and J. G. Kirkwood—1743
Application of the kinetic theory of liquids of Born and Green to the problem of the calculation of the volume viscosity, R. E. Nettleton—1560(L)
Comparison of the approximate solutions for free neutral atoms, T. Tietz—1167(L)
Configuration of polymer molecules with excluded volume, W. R. Krigbaum—2113
Effect of orientational forces on second virial coefficients, Barbara J. Castle, John M. Dawson, and Laurens Jansen—1733(L)
Excluded volume in polymer chains, Marshall Fixman—1656
Extended interpretation of the Boltzmann-Maxwell equation (a theory of nonstationary random processes), Toyoki Koga—2275
First-order phase transitions in canonical and grand ensembles, Terrell L. Hill—812
High-temperature equation of state by a perturbation method. II. Polar gases, Robert W. Zwanzig—1915
Intermolecular potentials of argon, krypton, and xenon, E. Whalley and W. G. Schneider—1644
Intrinsic viscosity of flexible macromolecules: corrected tables, John G. Kirkwood, Robert W. Zwanzig, and Richard J. Plock—213(L)
Mixtures of rigid spherical molecules, Berni J. Alder—263
Molecular clusters in imperfect gases, Terrell L. Hill—617
Molecular formulation of thermodynamic functions encountered in solution theory, Frank P. Buff and Robert Brout—458
Monte Carlo calculation of the average extension of molecular chains, Marshall N. Rosenbluth and Arianna W. Rosenbluth—356
Note on imperfect gas theory, Frank E. Harris—1965(L)
Note on singular integral equations of the Kirkwood-Riseman type, Peter L. Auer and Clifford S. Gardner—1545(L)
Radial distribution function calculated by the Monte-Carlo method for a hard sphere fluid, B. J. Alder, S. P. Frankel, and V. A. Lewison—417
Second virial coefficient for ellipsoids with imbedded dipoles, Charles Muckenfuss, C. F. Curtiss, and R. B. Bird—1542(L)
Solution of the Kirkwood-Riseman integral equation in the asymptotic limit, Peter L. Auer and Clifford S. Gardner—1546(L)
Spherical interface. II. Molecular theory, Frank P. Buff—419
Statistical calculation of mean dimensions of macromolecules. III, F. T. Wall, L. A. Hiller, Jr., and W. F. Atchison—2314
Statistical mechanics of isotopic systems with small quantum corrections. I. General considerations and the rule of the geometric mean, Jacob Bigeleisen—2264
Statistical mechanics of polymer solutions. Part I and II, Michio Kurata, Mikio Tanura, and Tatsuro Watari—991
Structure of the configuration integral in the statistical mechanics of pure fluids, B. Widom—560
Theory of one-dimensional fluid binary mixtures, Ryoichi Kikuchi—2327
Theory of protein solutions. I, Terrell L. Hill—623
Theory of protein solutions. II, Terrell L. Hill—2270
Use of the lattice model for entropy calculations, F. Bueche and W. R. Krigbaum—1863
Variational theory of the radial distribution function, John M. Richardson—2304
Virial coefficients of benzene-cyclohexane mixtures, and theories of liquid solutions, F. G. Waelbroeck—749(L)
Zero-point energy of monatomic crystals, W. C. DeMarcus—602(L)

Metals
Bonding in the zinc family metals, W. E. Wallace—2281
Diffusion of zinc in crystalline zinc oxide, E. A. Secco and W. J. Moore—1170(L)
Effect of pressure on self-diffusion in white phosphors, Norman H. Nachtrieb and A. W. Lawson—1193
Effect of proton irradiation upon the rate of solution of Fe_2O_3 in hydrochloric acid, M. Simnad and R. Smoluchowski—1961(L)
Grüneisen's constant for some metals, J. J. Gilvarry—1925
Liquid metals. II. X-ray diffraction by liquid mercury and the distance of closest atomic approach, Joseph S. Lukesh, William H. Howland, Leo F. Epstein, and Marion D. Powers—1923
Physical properties of plutonium metal, Eric R. Jette—365
Self-diffusion in α white phosphors, Norman H. Nachtrieb and George S. Handler—1187
Self-diffusion in lead, Norman H. Nachtrieb and George S. Handler—1569
Self-diffusion in sodium near the melting point, Robert E. Meyer and Norman H. Nachtrieb—405(L)
Self-diffusion of liquid sodium, R. E. Meyer and N. H. Nachtrieb—1851

Microwave Spectra (see **Absorption Spectra**)
Molecular Films (see **Surface Phenomena**)
Molecular Spectra (see **Absorption Spectra, Emission Spectra, Fluorescence, and Raman Spectra**)
Molecular Structure and Constants (see also **Absorption Spectra, Electron, and X-Ray Diffraction**)
Absorption bands of N_2O near 4.5μ, K. Lakshmi and J. H. Shaw—1887
Absorption cross sections of carbon dioxide and carbon monoxide in the vacuum ultraviolet, H. Sun and G. L. Weissler—1625
Absorption cross sections of methane and ammonia in the vacuum ultraviolet, H. Sun and G. L. Weissler—1160
Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. II. Bromine, Dennis F. Evans—1426
Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. I. Iodine, Dennis F. Evans—1424

Active nitrogen in the rare gases and its excitation of metal vapors, Carl Kenty—1555(L)
Analysis of spin-spin multiplets in nuclear magnetic resonance spectra, H. M. McConnell, A. D. McLean, and C. A. Reilly—1152
Analysis of the near ultraviolet absorption spectra of *ortho*- and *para*-dichlorobenzene vapors, Tosinobu Anno and Ikuo Matubara—796
Analysis of the 6140 cm^{-1} band of HDS, Glenn A. Crosby, Edward J. Bair, and Paul C. Cross—1660
Anomalous electron scattering from iodine vapor, I. L. Karle—1739(L)
Anomalous infrared intensity in ethylene, D. F. Eggers, Jr.—221(L)
Appearance potential studies. II. Nitromethane, Richard J. Kandel—84
Approximate method of calculating vibrational frequencies of polyatomic molecules, S. Bratoz—159
Asymmetric rotor. XII. The infrared spectrum of hydrogen sulfide from 7480 to 7880 cm^{-1}, Girard L. Ordway, Paul C. Cross, and Edward J. Bair—541
Atom-stabilization energies in conjugated systems, Takeshi Nakajima—587(L)
Barrier height and thermodynamic functions of gaseous HNO_3 and DNO_3, Ann Palm and Martin Kilpatrick—1562(L)
Barrier hindering internal rotation in methylamine, J. G. Aston and Frank L. Gittler—211(L)
Bending force constant of the carbon tetrafluoride molecule, Eiko Aihara—1563(L)
Bond energies in organic fluorine compounds, Norbert W. Luft—973(L)
Calculated fundamental vibrational frequencies for bromosilanes, Hiromu Murata and Kiyoyssu Kawai—2451(L)
Calculation of depolarization factors of the Raman lines of CCl_3X molecules, Alfons Weber and Salvador M. Ferigle—2207
Calculation of electrostatic binding energies in systems of isotropic ions, Chester T. O'Konski—1174(L)
Calculation of energy levels for internal torsion and overall rotation. I. CH_3BF_2 type molecules, E. Bright Wilson, Jr., Chun Chia Lin, and David R. Lide, Jr.—136
Calculation of the dipole moment of the carbon-hydrogen bond in methane by the Thomas-Fermi method, Herbert Glazer and Howard Reiss—937
Chemical shifts of nitrogen, B. E. Holder and M. P. Klein—1956(L)
Cl^{35} pure quadrupole resonances in acid chlorides and chlorates, P. J. Bray—703
Cl^{35} pure quadrupole resonances in substituted chlorobenzene, P. J. Bray—220(L)
Coincidence of fusion points in the polymorphs of dibenzoylmethane and of its enol-ethers, Y. Urushibara, F. Iimura, and K. Ikeda—1724(L)
Complete π-electron treatment of allyl radical and allyl ion, H. C. Lefkovits, Janice Fain, and F. A. Matsen—1690
Concerning hydrogen positions in aquo complexes—$CuCl_2 \cdot 2H_2O$, R. E. Rundle, Kazuo Nakamoto, and James W. Richardson—2450(L)
Contributions of fluctuations and anisotropy to dielectric polarization in polar substances, Frank E. Harris—1663
Correlations between characteristic frequencies of the paraffins and the skeletal frequencies of some structurally analogous polar molecules, N. Sheppard and D. M. Simpson (Mrs. J. N. Agar)—582
Coupling of the out-of-plane bending mode in nitrates and carbonates of the aragonite structure, J. C. Decius—1290
Crystal structure and quadrupole coupling of cyanogen bromide, BrCN, S. Geller and A. L. Schawlow—779
Crystal structure of aluminum nitride, G. A. Jeffrey and G. S. Parry—406(L)
Dynamic equilibrium of inverted isomers in a crystalline phase, Tsuneo Yoshino—1974(L)
Effect of Fermi resonance on the centrifugal stretching constants in CO_2, C. P. Courtoy and G. Herzberg—975(L)
Effect of high *cis*-barrier on the microwave spectrum of hydrogen peroxide, J. T. Massey and Robert W. Hart—942
Electron exchange coupling of nuclei in aromatic systems, H. S. Gutowsky, L. H. Meyer, and D. W. McCall—982(L)
Electron spin resonance of semiquinones, John E. Wertz and Juana L. Vivo—2441(L)
Electronic structure of metal *bis*-cyclopentadienyls, J. D. Dunitz and L. E. Orgel—954
π-Electronic structure of the HCN molecule, Kaoru Iguchi—1983
Emission and two-body recombination in bromine, Howard B. Palmer—2449(L)
Energy calculations for the linear H_3^+ ion system, Roland S. Barker, J. Calvin Giddings, and Henry Eyring—344
Energy calculations of multiple hydrogen-atom systems by VB and MO methods, Roland S. Barker, Richard L. Snow, and Henry Eyring—1686
Energy dependence of inelastic molecular collision probabilities, B. Widom—2377
Evaluation of force constants from Raman effect data. Part 1: Molecules and radicals of the type XY_4, K. Venkateswarlu and S. Sundaram—2365
Evaluation of force constants from Raman effect data. Part 2: Molecules and radicals of the planar XY_3 type, K. Venkateswarlu and S. Sundaram—2368
Excited triplet states of polyatomic molecules. II. Flash-lamp studies on aromatic ketones, Donald S. McClure and Phillip L. Hanst—1772
Explicit derivation for the *s* vectors in the normal coordinate treatment of molecular vibrations, Robert J. Malhiot and Salvador M. Ferigle—30
Far ultraviolet absorption spectra of ethylene and ethylene-d_4, P. G. Wilkinson and R. S. Mulliken—1895
Fermi resonance and isotope effect in the infrared spectrum of carbon tetrachloride, P. Tuomikoski—2083
Fine structure of the 2.7 micron carbon dioxide rotation-vibration band, W. L. France and F. P. Dickey—471
Force constants, infrared spectrum, and theromdynamic properties of $TiCl_4$, N. J. Hawkins and D. R. Carpenter—1700
Free-electron treatment of Diels-Alder's reaction, Sadham Basu—1548(L)
Frequency shift of the CO stretching band in polypeptides and proteins, Samuel Krimm—1371(L)
General relation between potential energy and internuclear distance for diatomic and polyatomic molecules. I, Ellis R. Lippincott and Rudolph Schroeder—1131
Ground state of the helium hydride ion, Arthur A. Evett—1169(L)
Helical configuration of a polymer chain, Takehiko Shimanouchi and San-ichiro Mizushima—707
High-speed machine computation of ideal gas thermodynamic functions. II. The diatomic free radicals of the isotopic hydrides of oxygen and sulfur, Lester Haar and A. S. Friedman—869
Hindered rotation of water molecules of hydration in $Mg(H_2O)_6Cl_2$ and $Mg(H_2O)_6Br_2$, Tunahiko Sidel and Syukuro Yano—1554(L)
Hybrid π orbitals and partial double bond character in covalent complexes, Giovanni Giacometti—2068

Molecular Structure and Constants (continued)
Infrared absorption spectra of inorganic coordination complexes. III. Deformation frequencies of the NH_3 ligand, San-ichiro Mizushima, Ichiro Nakagawa, and J. V. Quagliano—1367(L)
Infrared adsorption spectra of hexammine metals complexes, Masahisa Kobayashi and Junnosuke Fujita—1354(L)
Infrared adsorption spectrum of deuterated polyvinyl alcohol film, Hiroyuki Tadokoro, Syûzô Seki, and Isamu Nitta—1351(L)
Infrared and Raman spectra of dicyanoacetylene. II, Foil A. Miller, Roy B. Hannan, Jr., and Lauren R. Cousins —2127
Infrared and Raman spectra of fluorinated ethylenes. VI. Fluorotrichloroethylene, J. Rud Nielsen, C. W. Gullikson, and A. H. Woollett—1994
Infrared and Raman spectra of fluorinated ethanes. VIII. Pentafluoroethane, J. Rud Nielsen, Howard H. Claassen, and Norma B. Moran—329
Infrared and Raman spectra of nitrogen trifluoride, E. L. Pace and Louis Pierce—1248
Infrared and Raman spectra of 1,1,2,2,-tetrachloroethane; calculation of normal vibrations, Kazuo Naito, Ichiro Nakagawa, Kenji Kuratani, Isao Ichishima, and San-ichiro Mizushima—1907
Infrared intensities and bond moments in formaldehyde, L. C. Hisatsune and D. F. Eggers, Jr.—487
Infrared investigation of the benzene-chlorine molecular complex, J. Collin and L. D'Or—397(L)
Infrared spectra of NpF_6 and PuF John G. Malm, Bernard Weinstock, and Howard H. Claassen—2192(L)
Infrared spectra of oxonium halides and the structure of the oxonium ion, C. C. Ferriso and D. F. Hornig—1464
Infrared spectrum and molecular constants of CD_4, Hoyt M. Kaylor and Alvin H. Nielsen—2139
Infrared spectrum and molecular structure of succinonitrile, George J. Janz and William E. Fitzgerald—1973 (L)
Infrared spectrum and structure of collagen, G. N. Ramachandran—600(L)
Infrared spectrum and the structure of the low-temperature phases of crystalline HCl, HBr, and HI, D. F. Hornig and W. E. Osberg—662
Infrared spectrum of iridium hexaflouride, H. C. Mattraw, N. J. Hawkins, D. R. Carpenter, and W. W. Sabol—985(L)
Infrared spectrum of LiH, William Klemperer—2452(L)
Infrared spectrum of $Ni(CO)_4$ vapor, Llewellyn H. Jones —2448(L)
Infrared spectrum of plutonium hexafluoride, N. J. Hawkins, H. C. Mattraw, and W. W. Sabol—2191(L)
Infrared spectrum of SOF_2, J. Kenneth O'Loane and M. Kent Wilson—1313
Infrared spectrum of solid ammonium azide: a vibrational assignment, David A. Dows, Eric Whittle, and George C. Pimentel—1475
Infrared spectrum of solid *n*-octane-1,1,1,8,8,8-d_6, George C. Pimentel and William A. Klemperer—376
Infrared spectrum of trideuterosilane and the structure of the silane molecule, D. R. J. Boyd—922
Internal barrier height of methyl mercaptan, Ralph W. Kilb—1736(L)
Internal rotation in methyl-trifluoromethyl acetylene, David R. Lide, Jr., and Daniel Kivelson—2191(L)
Intramolecular O—H—O hydrogen bonds in bis-(dimethylgloximato)-cobalt (III)-complexes, Junnosuke Fujita, Akitsuga Nakahara, and Ryutaro Tsuchida—1541(L)
Ionic character of diatomic molecules, B. P. Dailey and C. H. Townes—118
Ionization and dissociation processes in the vapors of lithium chloride, sodium chloride, and potassium chloride, Robert M. Hobson—2463(L)
Ionization potential of benzyl radical, Ikuzo Tanaka and Chimao Komatsu—976(L)
Ionization potential of the free HO_2 radical and the $H-O_2$ bond dissociation energy, S. N. Foner and R. L. Hudson—1364(L)
Ionization potentials and charge-transfer spectra of substituted benzenes, L. E. Orgel—1352(L)
LCAO MO study of the phenomenon of thermochromism, Sheldon L. Matlow—152
Least-squares calculation of OVFF force constants for XY_4 tetrahedral molecules, William S. Horton—1727 (L)
Line width transition of the proton magnetic resonance in polymers, Akira Odajima, Junkichi Sohma, and Mitsuru Koike—1959(L)
London force contributions to bond energies, Kenneth S. Pitzer—1735(L)
Lowest triplet levels of the plyacones, S. P. McGlynn, M. R. Padhye, and M. Kasha—593(L)
Low-frequency rotational spectrum of HDO, Samuel Weisbaum, Yardley Beers, and Gabriel Herrmann—1601
Low resolution electronic spectrum of crystalline *para*-dimethoxybenzene with application to benzene, Andreas C. Albrecht and William T. Simpson—1480
Mass spectrometric study of barium oxide vapor, Mark G. Inghram, William A. Chupka, and Richard F. Porter —2159
Mass spectrum of lithium iodide, Lewis Friedman—477
Mean amplitudes of thermal vibrations in polyatomic molecules. III. The generalized mean amplitudes, Yonezo Morino and Eizi Hirota—737
Measurement of bond moments in C_2H_2 and C_2D_2 from infrared intensities, Edward C. Wingfield and Joseph W. Straley—731
Measurement of the magnetic susceptibility of manganese nitride Mn_5N_2 by a microvibration method, Y. L. Yousef, R. K. Girgis, and H. Mikhail—959
Measurement of the molecular weights of vapors at high temperature. II. The vapor pressure of germanium and the molecular weight of germanium vapor, Alan W. Searcy and Robert D. Freeman—88
Methyl alcohol. I. Microwave spectrum, Putcha Venkateswarlu, Howard D. Edwards, and Walter Gordy—1195
Methyl alcohol. II. Molecular structure, Putcha Venkateswarlu and Walter Gordy—1200
Microwave spectrum and molecular structure of methylchloroacetylene, C. C. Costain—2037
Microwave spectrum and planarity of formamide, R. J. Kurland—2202(L)
Microwave spectrum and planarity of the ring of trimethylene oxide, Jose Fernandes, Rollie J. Myers and William D. Gwinn—758(L)
Microwave spectrum of cyclopentanone, James H. Burkhalter—1172(L)
Microwave spectrum of cyclopropyl chloride, James P. Friend, Robert F. Schneider, and B. P. Dailey—1557(L)
Microwave spectrum of ethyl bromide, R. S. Wagner, N. Solimene, and B. P. Dailey—599(L)
Microwave spectrum of ethyl fluoride, J. Kraitchman and B. P. Dailey—184

Microwave spectrum of imine-deuterated ethylenimine, T. E. Turner, Verna C. Fiora, and W. M. Kendrick—1966(L)
Microwave spectrum of propiolactone, Nowhan Kwak, J. W. Simmons, and J. H. Goldstein—2450(L)
Microwave spectrum of propiolic aldehyde, John A. Howe and J. H. Goldstein—1223
Modified atomic orbital method. I. The electronic structure of the ethylene molecule, Kimio Ohno and Takashi Itoh—1468
Molecular association and proton resonance in propionic acid, B. N. Bhar and G. Lindström—1958(L)
Molecular calculations. I. An LCAO MO self-contained field treatment of the ground state of H_2O, Frank O. Ellison and Harrison Shull—2348
Molecular calculations. III. A modification of the naive semiempirical MO method, Lionel Goodman and Harrison Shull—33
Molecular compounds and their spectra. V. Orientation in molecular complexes, R. S. Mulliken—397(L)
Molecular orbitals for the hydrogen molecule ground state, Richard F. Wallis—1256
Molecular structure of diborane tetrachloride, B_2Cl_4, Masao Atoji, William N. Lipscomb, and P. J. Wheatley—1176(L)
Molecular structure of methylamine from its microwave spectrum, Tetsuji Nishikawa, Takashi Itoh, and Koichi Shimoda—1735(L)
Monte Carlo calculation of the average extension of molecular chains, Marshall N. Rosenbluth and Arianna W. Rosenbluth—356
Multiple thio-radicals in sulfuric acid solution, John E. Wertz and Juana L. Vivo—2193(L)
Near infrared spectrum of nitric oxide, Nathan L. Nichols, C. D. Hause, and R. H. Noble—57
Near ultraviolet absorption spectra of *ortho-*, *meta-*, and *para*-phenylenediamine vapors, Akira Sadô and Tosinobu Anno—1740(L)
New form of molecular potential function for use in molecular vibrational analysis, Emil J. Slowinski, Jr.—1933
Normal coordinates of *n*-dimethylaminodiborane, R. G. Breene, Jr.—97
Normal coordinate treatment of dimethyldiacetylene, Alfons Weber and Salvador M. Ferigle—579
Note on the absorption spectra of the methyl radical, Jiro Higuchi—2197(L)
Note on the interaction and configuration in chlorine-benzene complex, Hidso Murakami—1957(L)
Note on the X-band microwave spectrum of heavy water, D. W. Posener—1728(L)
Nuclear hyperfine structure in the paramagnetic resonance absorption of triarylaminium perchlorates, O. R. Gilliam, Robert I. Walter, and V. W. Cohen—1540(L)
Nuclear magnetic resonance spectra of methyl pyridines, Edward B. Baker—1981(L)
Nuclear magnetic resonance: structure of the amino group I, R. A. Kromhout and W. G. Moulton—1673
Nuclear quadrupole interaction in HCN and DCN in the bending vibrational mode, Robert L. White—249
Nuclear quadrupole resonances in solid iodine compounds, S. Kojima, K. Tsukada, S. Ogawa, and A. Shimauchi—1963(L)
Nuclear quadrupole resonances of As^{75}, R. G. Barnes and P. J. Bray—407(L)
Nuclear quadrupole resonances of Sb^{121} and Sb^{123}, R. G. Barnes and P. J. Bray—1177(L)
Nuclear spin-spin coupling in substituted benzenes, Edward B. Baker—984(L)
Observation of chemical shifts of O^{17} nuclei in various chemical environments, H. E. Weaver, B. M. Tolbert, and R. C. La Force—1956(L)
Observation of the semiquinone of benzoquinone, Scott Blois—1351(L)
Paramagnetic absorption of potassium complexes of aromatic compounds, Ricardo C. Pastor and John Turkevich—1731(L)
Paramagnetic resonance in semiquinone ions of substituted *O*-benzoquinones, Raymond Hoskins—1975(L)
Perturbation method for the calculation of molecular vibration frequencies. II. Generalization of the theory, P. W. Higgs—1448
Perturbation method for the calculation of molecular vibration frequencies. III. Skeletal stretching vibrations of normal paraffins, P. W. Higgs—1450
Phosphorescence of solids containing the manganous or ferric ions, L. E. Orgel—1958(L)
Photoionization efficiencies and cross sections in NH_3, W. C. Walker and G. L. Weissler—1540(L)
Photoionization efficiencies and cross sections in N_2O and NO, W. C. Walker and G. L. Weissler—1962(L)
Polarized spectra of anthracene crystals and Davydov splitting, L. E. Lyons—1973(L)
Preliminary data on photoionization efficiencies and cross sections in C_2H_4 and C_2H_2, W. C. Walker and G. L. Weissler—1547(L)
Problem of molecular association in liquid boron trifluoride, T. H. S. Higgins and C. J. G. Raw—606(L)
Proof of the staggered configuration of ethyl chloride, R. S. Wagner and B. P. Dailey—1355(L)
Properties of the hydrogen bond. The role of lone pair electrons, W. G. Schneider—26
Proposed structure of certain spinels at high temperature, William T. Holser—764(L)
Proton chemical shift in ammonia, B. N. Bhar—1972(L)
Proton magnetic resonance in liquid crystals—orientation effects, P. L. Jain, J. C. Lee, and R. D. Spence—878
Pure rotational spectra of DBr, HI, and DI in the spectral region between 45 and 170 microns, E. D. Palik—217(L)
Pure rotational spectrum of H_2Se between 50 and 250 cm^{-1}, E. D. Palik—980(L)
Pyramidal $XY(CH_3)_2$ molecular model classical vibration problem, Harold C. Beachell, Bernard Katlafsky, and James L. Lauer—2171
Quadrupole coupling of the deuteron in DCCCl and DCN, Robert L. White—253
Raman spectra of thionyl fluoride and sulfuryl fluoride, Paul Bender and James M. Wood, Jr.—1316
Raman spectrum of sulfur dichloride, H. Stammreich, Roberto Forneris, and Kozo Sone—972(L)
Re-examination of two free radicals, John E. Wertz, C. F. Koelsch, and Juana L. Vivo—2194(L)
Refined procedure for analysis of electron diffraction data and its application to CCl_4, L. S. Bartell, L. O. Brockway, and R. H. Schwendeman—1854
Regularities in the absorption spectra of halides, Leonard I. Katzin—2055
Reinterpretation of electron impact experiments in CO, N_2, NO, and O_2, Homer D. Hagstrum—1178(L)
Relation of stability ratios to Pauling electronegativities, R. T. Sanderson—2467(L)
Relative diameter of oxygen and hydrogen molecules, using negative pressure as an indicator, Lyman J. Briggs—261
Remarks on the structure of NH_3 and PH_3 molecules, Wlodzimierz Kolos—1554(L)
Report on notation for the spectra of polyatomic molecules—1997

Molecular Structure and Constants (continued)
Restricted rotation in amides as evidenced by nuclear magnetic resonance, W. D. Phillips—1363(L)
Ring formation and molecular weight distributions in branched-chain polymers. I, Frank E. Harris—1518
SCF LCAO MO study of N_2, Charles W. Scherr—569
Semiempirical study of the H_3Cl transition complex through the use of hydrogen isotope effects, Jacob Bigeleisen and Max Wolfsberg—1535
Semi-empirical treatment of the pi electrons of some halogen substituted benzenes, R. H. Knipe—2089
Simplified SCF calculation for fulvene, Hideo Kon—1176 (L)
Simultaneous transitions in liquids. A new kind of molecular spectrum, J. A. A. Ketelaar and F. N. Hooge—1549 (L)
Singlet-triplet excitation energy of aromatic compounds and their reactivities, M. Szwarc—204(L)
Spectra and electronic structure of fluorochromate ion, chromyl chloride, and some related compounds, Lindsay Helmholz, Harry Brennan, and Max Wolfsberg—853
Spectroscopic studies of rotational isomerism in fluorinated ethanes. I. 1,2-difluoro-1,1,2,2,-tetrachloroethane, R. B. Kagarise and L. W. Daasch—113
Spectroscopic studies of rotational isomerism in fluorinated ethanes. II. 1,2-dibromo-1,1,2,2,-tetrafluoroethane, R. E. Kagarise and L. W. Daasch—130
Spectroscopic studies of some aromatic acids with a heteroatom in the side-chain, A. I. Kiss and B. R. Muth—2187(L)
$^4\Pi$ state of the O_2^+ molecule, A. Budo and I. Kovacs—751(L)
Statistical computation of mean dimensions of macromolecules. II, F. T. Wall, L. A. Hiller, Jr., and W. F. Atchison—913
Statistical mechanics of isotopic systems with small quantum corrections. I. General considerations and the rule of the geometric mean, Jacob Bigeleisen—2264
Stereochemical consequences of intramolecular attractive forces, G. J. Szasz—2449(L)
Streamer and brush flames excited by active nitrogen in the rare gases, Carl Kenty—1556(L)
Structure and barrier height of methyl mercaptan from microwave data, N. Solimene and B. P. Dailey—124
Structure and barrier to internal rotation of formic acid from microwave data, R. G. Lerner, J. P. Friend, and B. P. Dailey—210(L)
Structure and calculation of the binding energy of gaseous alkali halide dimers, Chester T. O'Konski and William I. Higuchi—1175(L)
Structure and internal motion of C_2F_6 and Si_2Cl_6 vapors, D. A. Swick and I. L. Karle—1499
Structure and potential barrier to hindered rotation in methyl alcohol, Jerome D. Swalen—1739(L)
Structure of ferrocene, E. A. Seibold and L. E. Sutton—1967(L)
Structure of hexamethyldisilane, Hiromu Murata and Kazuhiro Shimizu—1968(L)
Structure of sym-tetrabromoethane, R. E. Kagarise—207 (L)
Structures of CF_3Cl and CH_3Cl, L. S. Bartell and L. O. Brockway—1860
Study of chelation through Raman effect, P. C. Puranik—761(L)
Substituted methanes. XXI. Calculated and observed wave numbers, and calculated thermodynamic properties, for bromodeuteromethane and bromodideuteromethane, Jerome M. Dowling—700
Substituted methanes. XXII. Infrared spectra of $CHBrF_2$, Ann Palm, Fred L. Voelz, and Arnold G. Meister—726
Substituted methanes. XXIII. Infrared spectral data, rotational constants, normal coordinate treatments and thermodynamic properties for CD_3Br and CH_3Br, Herman B. Weissman, Richard B. Bernstein, Shirley E. Rosser, Arnold G. Meister, and Forrest F. Cleveland —544
Substituted methanes. XXVI. Raman and infrared spectral data, assignments, potential constants, and thermodynamic properties for $CHBrCl_2$ and $CDBrCl_2$, Santiago R. Polo, Ann Palm, Fred L. Voelz, Forrest F. Cleveland, Arnold G. Meister, Richard B. Bernstein, and Robert H. Sherman—833
Supplementary comments on the "electronic structure of the amylose-iodine complex," Hideo Murakami—1979(L)
Surface tension and viscosity of liquids, J. F. Simons and W. H. Wilson—613
Theoretical evaluation of atomic polarizations of diatomic molecules, A. P. Altshuller—256
Theoretical study of the ozone molecule, Inga Fischer-Hjalmars—411(L)
Theory of internal over-all rotational interactions. II. Hamiltonian for the nonrigid internal rotor, Daniel Kivelson—2230
Theory of internal over-all rotational interactions. III. Nonrigid asymmetric rotors, Daniel Kivelson—2236
Theory of normal paraffin liquids, Michio Kurata and Siniti Isida—1126
Theory of the Taylor-Benedict-Strong effect, Gilbert Amat and Mark Goldsmith—1171(L)
Thermal conductivities of organic vapor mixtures, L. A. Bennett and R. G. Vines—1587
Thermochromism and photochromism, Yehuda Hirshberg and Ernst Fischer—1723(L)
Thermochromism and photochromism, G. Kortüm, W. Theilacker, and V. Braun—1723(L)
Thermodynamic functions for silane, Aubrey P. Altshuller —761(L)
Thermodynamic properties of ideal gaseous methanol, E. V. Ivash, James C. M. Li, and Kenneth S. Pitzer—1814
Thermodynamic properties of nitrogen trifluoride from 12°K to its boiling point. The entropy from molecular and spectroscopic data, Louis Pierce and E. L. Pace—551
Third-order conjugation energies, Y. I'Haya—1171(L)
Ultraviolet absorption spectrum of benzene in *n*-hexane at pressures to 6000 bars, W. W. Robertson and F. A. Matsen—2468(L)
Use of molecular quantum-mechanical approximation exemplified in the energy calculation of the H_3^- system, Roland S. Barker, Henry Eyring, Don A. Baker, and Charles J. Thorne—1381
Vapor absorption spectra of light and heavy naphthalenes at 2900–2500 A, H. Sponer and C. D. Cooper—646
Variation with vibration of the fluorine spin-rotation interaction in Li^6F, S. O. Kastner, A. M. Russell, and J. W. Trischka—1730(L)
Vibration-rotation band ν_2 of heavy water vapor, Fred P. Dickey and James M. Hoffman—1718
Vibration-rotation spectrum of silyl iodine, R. N. Dixon and N. Sheppard—215(L)
Vibrational analysis of the emission spectrum of coronene as a forbidden transition, Jerome W. Sidman—1365(L)

Vibrational assignment for sodium acetate, J. K. Wilmshurst—2463(L)
Vibrational energy of deuterium cyanide, Harry C. Allen, Jr., Eugene D. Tidwell, and Earle K. Plyler—1356(L)
Vibrational intensities. IV. Bond moments in C_2F_6, Dale G. Williams, Willis B. Person, and Bryce Crawford, Jr. —179
Vibrational intensities. V. BrCl and ICl, Wendell V. F. Brooks and Bryce L. Crawford, Jr.—363
Vibrational intensities in halogenated methanes. I. Methylene chloride, Joseph W. Straley—2183
Vibrational relaxation times of diatomic molecules and rocket performance, H. C. Penny and Henry Aroeste—1281
Vibrational spectra and structure of cyclopropane and cyclopropane-d_6, A. W. Baker and R. C. Lord—1636
Vibrational spectra, force constants, and calculated thermodynamic properties of methyltrifluorosilane, R. L. Collins and J. Rud Nielsen—351
Vibrational spectra of cyclobutforene (hexafluorocyclobutene), J. Rud Nielsen, N. Z. El-Sabban, and Morris Alpert—324
Vibrational spectra of molecules and complex ions in crystals. VIII. The infrared spectrum of a mixed crystal of 1-deutero-ammonia and 2-deutero-ammonia, F. P. Reding and D. F. Hornig—1053
Vibrational spectra of SiH_3Br and SiH_2Br_2, Dana W. Mayo, Herman E. Opitz, and John S. Peake—1344(L)
Vibrational spectrum of 1-fluoro-1-chloroethylene, D. E. Mann, N. Acquista, and Earle K. Plyler—2122
Vibrational spectrum of fluorotrichloroethylene, D. E. Mann and Earle K. Plyler—1989
Wavelength dependence of photoisomerization equilibria in azocompounds, Ernest Fischer, Max Frankel, and Reuven Wolovsky—1367(L)

Nuclear Quadrupole Resonance
Chlorine nuclear quadrupole resonances in solid solutions, C. Dean—1734(L)
Cl^{35} pure quadrupole resonances in acid chlorides and chlorates, P. J. Bray—703
Cl^{35} pure quadrupole resonances in substituted chlorobenzene, P. J. Bray—220(L)
Evidence for the interconversion of monochloroacetic acid by its pure quadrupole spectrum, Hisao Negita—214(L)
Nuclear quadrupole reasonance of γ-irradiated *para*-dichlorobenzene, Jules Duchesne, Andre Monfils, and Julien Garsou—1969(L)
Nuclear quadrupole resonances in solid iodine compounds, S. Kojima, K. Tsukada, S. Ogawa, and A. Shimauchi—1963(L)
Nuclear quadrupole resonances of As^{75}, R. G. Barnes and P. J. Bray—407(L)
Nuclear quadrupole resonances of Sb^{121} and Sb^{123}, R. G. Barnes and P. J. Bray—1177(L)
Origin of the line width of pure quadrupole resonance, Y. Kôi, A. Tsujimura, and T. Fuke—1346(L)

Nuclear Resonance (see **Magnetic Resonance**)

Phosphors
Activations by anions in the oxy-acid phosphors, Yoshihide Kotera—219(L)
Long time phosphorescence of organic crystals, Hartmut Kallmann, Bernard Kramer, and Eugene Sucov—1043
Magnetism on optical excitation of manganese-activated zinc sulfide phosphors, Keichi Oshima and Hiroshi Nagano—1473
Paramagnetic resonance of NaCl crystals containing additions of manganese impurity, Keichi Oshima, Hidetaro Abe, Hiroshi Nagano, and Makoko Nagusa—1721(L)
Phosphorescence of solids containing the manganous or ferric ions, L. E. Orgel—1958(L)
Production of a blue color in irradiated plastic scintillators, J. H. Pannell and B. Manning—1368(L)
Sensitized luminescence of zinc phosphors activated with copper and manganese, Shigeo Shionoya—1173(L)
Thermoluminescence measurements on ZnS phosphors in vacuo, G. Neumark, J. Fajans, and D. R. Franki—1553 (L)
Thermoluminescence of zinc sulfide phosphors doubly activated with copper and manganese, Shigeo Shionoya—1976(L)

Photoconductivity
Effect of oxygen on luminescence of cadmium sulfide, S. H. Liebson and E. J. West—977(L)
Mobility and quantum yield of charge carriers in crystal violet, R. C. Nelson—1550(L)
Photoconductance in tetracene-type crystals: theory of the spectral dependence, L. E. Lyons—220(L)
Photoconductivity and crystal imperfections in cadmium sulfide crystals. Part II. Determination of characteristic photoconductivity quantities, Richard H. Bube—18
Photoconductivity and crystal imperfections in cadmium sulfide crystals. Part I. Effect of impurities, Richard H. Bube and S. Milton Thomsen—15

Photochemistry
Absorption of bicycloheptane and bicycloheptene in the vacuum ultraviolet, Suzanne Stokes and Lucy W. Pickett —258
Chemical and photochemical studies on 6,8-thioctic acid and 1,2-dithiolane (trimethylene disulfide), R. B. Whitney and Melvin Calvin—1750
Decomposition of ammonia photosensitized by mercury $6(^3P_1)$ atoms, C. C. McDonald and H. E. Gunning—532
Formation of photographic positives on strained single crystals of silver chloride, Henry Leidheiser, Jr., and Frances H. Cook—595(L)
Gas phase oxidation of formaldehyde, Milton D. Scheer—1357(L)
Hydrogen peroxide photocatalyzed reaction of hydrogen and oxygen, David H. Volman—2458(L)
Mass spectrometric detection of radicals in the mercury photosensitized decomposition of acetone, J. B. Farmer, F. P. Lossing, D. G. H. Marsden, and E. W. R. Steacie —1169(L)
Mercury photosensitized decomposition of nitrous oxide, R. J. Cvetanović—1203
Mercury sensitized decomposition of ethylene, R. J. Cvetanović and A. B. Callear—1182(L)
Photochemical decomposition of aqueous permanganate ion, George Zimmerman—825
Photochemical studies of the porphyrins. III. Photoreduction of a porphyrin by benzoin, Gilbert R. Seely and Melvin Calvin—1068
Photolysis of acetic anhydride, Herman Burwasser and H. Austin Taylor—2295
Photolysis of hexafluoroazomethane, J. R. Dacey and D. M. Young—1302
Photosensitized decomposition of acetyl peroxide, C. Luner and M. Szwarc—1978(L)
Quantum yield of a cadmium sulfide photovoltaic cell, R. E. Marburger, D. C. Reynolds, L. L. Antes, and R. S. Hogan—2448(L)
Reaction of oxygen atoms with ethylene, R. J. Cvetanović —1375

Photochemistry (continued)
Reactions of Hg($^3P_1$) with toluene, A. H. Sehon and B. deB. Darwent—822
Relative efficiencies of quenching of mercury resonance radiation and their temperature independence. Mechanism of mercury photosensitized decomposition of saturated hydrocarbons, R. J. Cvetanović—1208
Reversible flash-bleaching of chlorophyll, Edwin W. Abrahamson and Henry Linschitz—2198(L)
Short-lived species from the photolysis of aqueous alkali halide and halogen solutions, L. I. Grossweiner and M. S. Matheson—2443(L)
Theory of photographic process, K. P. Sinha and A. B. Biswas—404(L)
Vacuum photolysis of silver bromide and silver chloride, George W. Luckey—882
Wavelength dependence of photoisomerization equilibria in azocompounds, Ernest Fischer, Max Frankel, and Reuven Wolovsky—1367(L)

Polymers
Absorption spectrum of polyethylene in the near infrared, Kurt Rossmann—1355(L)
Anomalous dielectric dispersion in polar macromolecular solutions, W. G. Hammerle and J. G. Kirkwood—1743
Calculation of thermodynamic properties of polyelectrolytes, R. A. Marcus—1057
Configuration of polymer molecules with excluded volume, W. R. Krigbaum—2113
Counter-ion distribution in dilute solutions of rigid spherical macro-molecular ions in the absence of added salt, Hiroshi Fujita—837
Depolarization of light scattered by polymolybdates in acid and basic solutions, P. K. Katti and V. N. Wanchoo—760(L)
Determination of particle size and refractive index near the turbidity maximum in monodisperse suspensions of spherical particles, Wilfried Heller—342
Excluded volume effect on light scattering of the coiled linear macromolecule, Anton Peterlin—2464(L)
Excluded volume in polymer chains, Marshall Fixman—1656
Helical configuration of a polymer chain, Takehiko Shimanouchi and San-ichiro Mizushima—707
Infrared adsorption spectrum of deuterated polyvinyl alcohol film, Hiroyuki Tadokoro, Syûzô Seki, and Isamu Nitta—1351(L)
Intrinsic viscosity of flexible macromolecules: corrected tables, John G. Kirkwood, Robert W. Zwanzig, and Richard J. Plock—213(L)
Intrinsic viscosity of polymethylmethacrylate, Anton Peterlin—750(L)
Light scattering from very long rod-like particles and an application to polymerized fibrinogen, Edward F. Casasa—596(L)
Line width transition of the proton magnetic resonance in polymers, Akira Odajima, Junkichi Sohma, and Mitsuru Koike—1959(L)
Linear association in nonaqueous solutions, Robert Ginell and Joel Shurgan—964
Linear association in solution. II. Analytical solution, Robert Ginell and Joel Shurgan—1356(L)
Method of integrating the rate equations for free radical initiated polymerizations, John P. Howe—899
Molecular theory of light scattering, Marshall Fixman—2074
Note on singular integral equations of the Kirkwood-Riseman type, Peter L. Auer and Clifford S. Gardner—1545(L)
Paramagnetic resonance of x-irradiated Teflon effects of absorbed oxygen, William B. Ard, Howard Shields, and Walter Gordy—1727(L)
Paramagnetic resonance of x-rayed Teflon, E. E. Schneider—978(L)
Ring formation and molecular weight distributions in branched-chain polymers. I, Frank E. Harris—1518
Solution of the Kirkwood-Riseman integral equation in the asymptotic limit, Peter L. Auer and Clifford S. Gardner—1546(L)
Statistical computation of mean dimensions of macromolecules. II, F. T. Wall, L. A. Hiller, Jr., and W. F. Atchison—913
Statistical calculation of mean dimensions of macromolecules. III, F. T. Wall, L. A. Hiller, Jr., and W. F. Atchison—2314
Statistical mechanics of polymer solutions. Parts I and II, Michio Kurata, Mikio Tanura, and Tatsuro Watari—991
Temperature dependency of the statistical segment size of polyethylene, Richard J. Volungis and Richard S. Stein—1179(L)
Theory of normal paraffin liquids, Michio Kurata and Sin-iti Isida—1126
Thermal diffusion in polymer solutions, A. H. Emery, Jr., and H. G. Drickamer—2252

Proteins
Frequency shift of the CO stretching band in polypeptides and proteins, Samuel Krimm—1371(L)
Infrared spectra of liquid anhydrous hydrogen fluoride, liquid sulfur dioxide, and hydrogen fluoride-sulfur dioxide solutions, Robert H. Maybury, Sheffield Gordon, and Joseph J. Katz—1277
Restricted rotation in amides as evidenced by nuclear magnetic resonance, W. D. Phillips—1363(L)
Theory of protein solutions. I, Terrell L. Hill—623
Theory of protein solutions. II, Terrell L. Hill—2270
Vector distributions and crystalline proteins, Dorothy Wrinch—1361(L)

Quantum Mechanics (see **Mechanics, Quantum**)

Radiation Chemistry
Catalytic activity induced by neutron irradiation of inert silica, P. B. Weisz and E. W. Swegler—1567
Decomposition of carbon dioxide by ionizing radiation. Part I, P. Harteck and S. Dondes—902
Decomposition of methyl alcohol by Co^{60} gamma radiation, William R. McDonell and Sheffield Gordon—208(L)
Decomposition of methyl alcohol-water solutions by Co^{60} gamma radiation, William R. McDonell—208(L)
Effect of pile irradiation on sodium chlorate, L. J. Sharman and K. J. McCallum—597(L)
Effect of proton irradiation upon the rate of solution of Fe_2O_3 in hydrochloric acid, M. Simnad and R. Smoluchowski—1961(L)
Effect of variations in source intensity on the alpha induced decomposition of ammonia, Benjamin P. Burtt and Theodore Baurer—466
Excitation of molecules in the beta decay of a constituent atom, H. M. Schwartz—400(L)
Heterogeneous exchange between chemisorbed halogen and methyl halide, R. Coekelbergs, A. Frennet, P. A. Gosselain, and M. J. van der Venne—1731(L)
Ion pair yields in the x-ray decomposition of hydrogen bromide in rare gas atmospheres, Edward G. Zubler, William H. Hamill, and Russell R. Williams, Jr.—1263
Irradiation of ferrous ammonium sulfate solutions: energy absorption and ionization calculations for cobalt-60 and betatron radiation, D. V. Cormack, R. W. Hummel, H. E. Johns, and J. W. T. Spinks—162

Luminescence quenching by oxygen: cyclohexane-benzene-*p*-terphenyl, P. J. Berry and Milton Burton—1969(L)
Organic radiation reactions with dissolved radioactive iodine, Warren W. Miller, Edward P. Rack, Elliot Burrell, and Conrad N. Trumbore—2457(L)
Oxidation states of phosphorus-32 produced by neutron irradiation of potassium chloride, T. A. Carlson and W. S. Koski—1596
Paramagnetic species in gamma-irradiated ice, Max S. Matheson and Bernard Smaller—521
Photoionization efficiencies and cross sections in NH_3, W. C. Walker and G. L. Weissler—1540(L)
Preliminary data on photoionization efficiencies and cross sections in C_2H_4 and C_2H_2, W. C. Walker and G. L. Weissler—1547(L)
Radiation chemistry of aqueous benzene solutions, J. G. Baxendael and D. Smithies—604(L)
Radiation induced equilibrium of hydrogen-deuterium mixtures, S. O. Thompson and O. A. Schaeffer—759(L)
Reactions of Br^{80} (18-min.) produced by isomeric transition of Br^{80m} (4.58-hr) with benzene and methylated benzenes, T. A. Carlson and W. S. Koski—2410
Tritium-carbon monoxide reaction, David L. Douglas—1558(L)

Radiochemistry

Activation cross sections of Y^{90} and Pr^{142}, R. R. Smith and S. D. Reeder—2108

Raman Spectra

Calculation of depolarization factors of the Raman lines of CCl_3X molecules, Alfons Weber and Salvador M. Ferigle—2207
Depolarization ratios of the Raman bands of thionyl chloride, G. Allen and C. A. McDowell—209(L)
Evaluation of force constants from Raman effect data. Part 1: Molecules and radicals of the type XY_4, K. Venkateswarlu and S. Sundaram—2365
Evaluation of force constants from Raman effect data. Part 2: Molecules and radicals of the planar XY_3 type, K. Venkateswarlu and S. Sundaram—2368
Infrared and Raman spectra of dicyanoacetylene. II, Foil A. Miller, Roy B. Hannan, Jr., and Lauren R. Cousins—2127
Infrared and Raman spectra of fluorinated ethylenes. VI. Fluorotrichloroethylene, J. Rud Nielsen, C. W. Gullikson, and A. H. Woollett—1994
Infrared and Raman spectra of fluorinated ethanes. VIII. Pentafluoroethane, J. Rud Nielsen, Howard H. Claassen, and Norma B. Moran—329
Infrared and Raman spectra of nitrogen trifluoride, E. L. Pace and Louis Pierce—1248
Infrared and Raman spectra of 1,1,2,2,-tetrachloroethane; calculation of normal vibrations, Kazuo Naito, Ichiro Nakagawa, Kenji Kuratani, Isao Ichishima, and Sanichiro Mizushima—1907
Infrared spectra and structure of NaOH and NaOD, William R. Busing—933
Normal coordinate treatment of dimethyldiacetylene, Alfons Weber and Salvador M. Ferigle—579
Raman and infrared spectra and structure of 2,6-dioxaspiro (3,3) heptane, S. C. Sirkar, Fred L. Voelz, and Forrest F. Cleveland—1684
Raman and infrared spectral data and tentative assignments for *cis*- and *trans*-diiodoethylene, Sidney I. Miller, Alfons Weber, and Forrest F. Cleveland—44
Raman spectra of thionyl fluoride and sulfuryl fluoride, Paul Bender and James M. Wood, Jr.—1316
Raman spectrum of frozen solution of CS_2 in methyl cyclohexane, S. C. Sirkar and G. S. Kastha—2439(L)
Raman spectrum of sulfur dichloride, H. Stammreich, Roberto Forneris, and Kozo Sone—972(L)
Spectroscopic studies of rotational isomerism in fluorinated ethanes. I. 1,2-Difluoro-1,1,2,2,-tetrachloroethane, R. E. Kagarise and L. W. Daasch—113
Spectroscopic studies of rotational isomerism in fluorinated ethanes. II. 1,2-Dibromo-1,1,2,2-tetrafluoroethane, R. E. Kagarise and L. W. Daasch—130
Structure of hexamethyldisilane, Hiromu Murata and Kazuhiro Shimizu—1968(L)
Study of chelation through Raman effect, P. G. Puranik—761(L)
Substituted methanes. XXI. Calculated and observed wave numbers, and calculated thermodynamic properties, for bromodeuteromethane and bromodideuteromethane, Jerome M. Dowling—700
Substituted methanes. XXV. Potential constants and calculated thermodynamic properties of dibromofluoromethane, Hiromu Murata, Ann Palm, and Arnold G. Meister—702
Substituted methanes. XXVI. Raman and infrared spectral data, assignments, potential constants, and thermodynamic properties for $CHBrCl_2$ and $CDBrCl_2$, Santiago R. Polo, Ann Palm, Fred L. Voelz, Forrest F. Cleveland, Arnold G. Meister, Richard B. Bernstein, and Robert H. Sherman—833
Vibrational spectra and structure of cyclopropane and cyclopropane-d_6, A. W. Baker and R. C. Lord—1636
Vibrational spectra, force constants, and calculated thermodynamic properties of methyltrifluorosilane, R. L. Collins and J. Rud Nielsen—351
Vibrational spectra of cyclobutforene (hexafluorocyclobutene), J. Rud Nielsen, M. Z. El-Sabban, and Morris Alpert—324
Vibrational spectrum of fluorotrichloroethylene, D. E. Mann and Earle K. Plyler—1989

Reaction Rates (see **Kinetics of Reaction**)

Rotation

Barrier height and thermodynamic functions of gaseous HNO_3 and DNO_3, Ann Palm and Martin Kilpatrick—1562(L)
Experimental determination of rotational temperatures and concentrations of OH in flames from emission spectra, S. S. Penner and E. K. Bjornerud—143
Hindered rotation of water molecules of hydration in $Mg(H_2O)_6Cl_2$ and $Mg(H_2O)_6Br_2$, Tunahiko Sidei and Syukuro Yano—1554(L)
Internal barrier height of methyl mercaptan, Ralph W. Kilb—1736(L)
Internal rotation in methyl-trifluoromethyl acetylene, David R. Lide, Jr., and Daniel Kivelson—2191(L)
Molecular structure and vibrational spectra of ethyl cyanide, Norman E. Duncan and George J. Janz—434
Proton magnetic resonance of the CH_3 group. III. Reorientation mechanism in solids, J. G. Powles and H. S. Gutowsky—1692
Restricted rotation in amides as evidenced by nuclear magnetic resonance, W. D. Phillips—1363(L)
Structure and potential barrier to hindered rotation in methyl alcohol, Jerome D. Swalen—1739(L)
Study of nuclear resonance of the supercooled rotational transition of 2,3,-dimethylbutane, Herbert Segall and J. G. Aston—528

Rotational Isomerism

Dynamic equilibrium of inverted iosmers in a crystalline phase, Tsuneo Yoshino—1974(L)
Further remarks on the spectra of nitrites and nitrosamines, R. N. Haszeldine and J. Jander—979(L)
Infrared and Raman spectra of 1,1,2,2,-tetrachloroethane; calculation of normal vibrations, Kazuo Naito, Ichiro Nakagawa, Kenji Kuratani, Isao Ichishima, and Sanichiro Mizushima—1907

Rotational Isomerism (continued)
Infrared spectrum and molecular structure of succinonitrile, George J. Janz and William E. Fitzgerald—1973(L)
Remarks on the spectra of nitrites and nitrosamines, P. Tarte—979(L)
Structure of sym-tetrabromoethane, R. E. Kagarise—207 (L)

Scattering
Applications in physics of the *P* function, Joseph I. Masters—1865
Calculation of interaction potentials from scattering cross sections, Edward A. Mason—2457(L)
Effect of a repulsive force on the scattering of ions by molecules, Vernon W. Myers—755(L)
Energy dependence of inelastic molecular collision probabilities, B. Widom—2377
Molecular theory of light scattering, Marshall Fixman—2074
Scattering of high velocity neutral particles. VI. Krypton-krypton, I. Amdur and E. A. Mason—2268
Scattering of high velocity neutral particles. V. Neon-neon, I. Amdur and E. A. Moses—415

Secondary Electron Emission
High-energy secondary electrons, B. L. Miller—599(L)

Semiconductors
Thermoelectric behavior of nickel oxide, G. Parravano—5

Solutions (see also **Liquids**)
Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. I. Iodine, Dennis F. Evans—1424
Absorption spectra of iodine and bromine in the gas phase and "inert" solvents. II. Bromine, Dennis F. Evans—1426
Absorption spectra of luminescent thallous chloride solutions, Allen B. Scott and Kuo-Hao Hu—1830
Anomalous dielectric dispersion in polar macromolecular solutions, W. C. Hammerle and J. G. Kirkwood—1743
Chlorine nuclear quadrupole resonances in solid solutions, C. Dean—1734(L)
Concentration dependence of chemical exchange and NMR multiplet structure in water-ethanol mixtures, Irving Weinberg and John R. Zimmerman—748(L)
Concentration dependence of solvent shift in the C − H (and C − D) stretching frequencies of chloroform and pentachloroethane, Richard B. Bernstein and Milton Tamres—2201(L)
Concerning the temperature coefficient of the emf of reversible galvanic cells operated at variable concentration. II, James C. M. Li—2012
Conductances of trimethylphenylammonium chloride and iodide in water and in dimethylformamide at 25°C, Paul G. Sears, Eugene D. Wilhoit, and Lyle R. Dawson—1274
Counter-ion distribution in dilute solutions of rigid spherical macromolecular ions in the absence of added salt, Hiroshi Fujita—837
Determination of the velocity of sound in hydrazine-water mixtures by means of the Debye-Sears ultrasonic light diffraction phenomenon, George G. Kretschmar—2102
Dielectric absorption of triethylamine solutions, Mansel Davies and A. H. Price—2204(L)
Diffusion coefficients of fatty acids and monobasic phosphoric acids in *n*-decane, J. R. White—2247
Effect of proton irradiation upon the rate of solution of Fe_2O_3 in hydrochloric acid, M. Simnad and R. Smoluchowski—1961(L)
Electron interaction in hydrocarbon multiple ions, N. S. Hush and J. Blackledge—514
Fluorescent behavior of solutions containing more than one solvent—Milton Furst and Hartmut Kallmann—607
Infrared intensity of the C–D stretch of chloroform-*d* in various solvents, Charles M. Huggins and George C. Pimentel—896
Infrared spectra of liquid anhydrous hydrogen fluoride, liquid sulfur dioxide, and hydrogen fluoride-sulfur dioxide solutions, Robert H. Maybury, Sheffield Gordon, and Joseph J. Katz—1277
Ionization of strong electrolytes. IV. Nuclear magnetic resonance and dissociation of trifluoroacetic acid, G. C. Hood, O. Redlich, and C. A. Reilly—2229
Linear association in nonaqueous solutions, Robert Ginell and Joel Shurgan—964
Linear association in solution. II. Analytical solution, Robert Ginell and Joel Shurgan—1356(L)
Luminescence quenching by oxygen: cyclohexane-benzene-*p*-terphenyl, P. J. Berry and Milton Burton—1969(L)
Magnetic susceptibility of liquid ozone-oxygen mixtures, Callaway Brown, Charles K. Hersh, and Abraham W. Berger—103
Mixtures of rigid spherical molecules, Berni J. Alder—263
Molecular association and proton resonance in propionic acid, B. H. Bhar and G. Lindström—1958(L)
Molecular formulation of thermodynamic functions encountered in solution theory, Frank P. Buff and Robert Brout—458
Multiple thio-radicals in sulfuric acid solution, John E. Wertz and Juana L. Vivo—2193(L)
Nature of the hydrogen-bond. II. The effect of hydrogen-bonding and other solute-solvent interactions upon the shape and intensity of the infrared OH band of phenol, Hiroshi Tsubomura—2130
Non-Newtonian viscosity of solutions of ellipsoidal particles, Harold A. Scheraga—1526
Note on singular integral equations of the Kirkwood-Riseman type, Peter L. Auer and Clifford S. Gardner—1545(L)
Nuclear magnetic resonance in concentrated aqueous electrolytes, James N. Shoolery and Berni J. Alder—805
Paramagnetic resonance in solutions of oxidized pyrogallol, R. H. Hoskins and B. R. Loy—2461(L)
Perfluoroheptane as a spectroscopic solvent, Dennis F. Evans—1429
Phenomenological theory of the Soret diffusion, James A. Bierlein—10
Polarized spectra of anthracene crystals and Davydov splitting, L. E. Lyons—1973(L)
Proton magnetic resonance studies of chloroform in solution: evidence for hydrogen bonding, Charles M. Huggins, George C. Pimentel, and James N. Shoolery—1244
Raman and infrared spectra and structure of 2,6-dioxaspiro (3,3) heptane, S. C. Sirkar, Fred L. Voelz, and Forrest F. Cleveland—1684
Raman spectrum of frozen solution of CS_2 in methyl cyclohexane, S. C. Sirkar and G. S. Kastha—2439(L)
Sedimentation velocity and diffusion of a solvated substance, Ping-Yao Cheng—191
Shape of the consolute curve and its consequences for the theory of binary liquid mixtures of nonelectrolytes, F. Kohler—1398
Single ion free energies and the entropies of aqueous ions, Wendell M. Latimer—90
Solution of the Kirkwood-Riseman integral equation in the asymptotic limit, Peter L. Auer and Clifford S. Gardner—1546(L)
System of ozone-oxygen, A. C. Jenkins, F. S. DiPaolo, and C. M. Birdsall—2049
System pyridine-pyrrole and the association of pyrrole, Serge N. Vinogradov and Robert H. Linnell—93

Theory of one-dimensional fluid binary mixtures, Ryoichi Kikuchi—2327
Theory of protein solutions. I, Terrell L. Hill—623
Theory of protein solutions. II, Terrell L. Hill—2270
Thermal conductivities of organic vapor mixtures, L. A. Bennett and R. G. Vines—1587
Thermal diffusion in polymer solutions, A. H. Emery, Jr., and H. G. Drickamer—2252
Thermodynamic properties of the system methane-carbon monoxide at 90.67°K, V. Mathot, L. A. K. Staveley, J. A. Young, and N. G. Parsonage—1551(L)
Ultrasonic absorption in sugar solutions, G. S. Verma—876
Ultrasonic investigation of a chemical kinetics problem: The dissociation of magnesium sulfate, David Alan Bies—428
Use of the lattice model for entropy calculations, F. Bueche and W. R. Krigbaum—1863
Virial coefficients of benzene-cyclohexane mixtures, and theories of liquid solutions, F. G. Waelbroeck—749(L)

Spectra (see **Absorption Spectra, Emission Spectra, Fluorescence, Raman Spectra**)

Statistical Mechanics (see **Mechanics, Statistical**)

Surface Phenomena

Absorption spectrum and quantum states of the praseodymium ion. II. Anhydrous praseodymium fluoride in films, Edward V. Sayre and Simon Freed—2066
Adsorption of helium on titanium dioxide, J. G. Aston, S. V. R. Mastrangelo, and R. J. Tykodi—1633
Adsorption of oxygen on tungsten as revealed in the field emission electron microscope, J. A. Becker and R. G. Brandes—1323
Adsorption of strontium and of barium on tungsten, George E. Moore and H. W. Allison—1609
Adsorption studies on clay minerals. V. Montmorillonite-cesium-strontium at several temperatures, George L. Gaines, Jr., and Henry C. Thomas—2322
Determination of adsorption energy heterogeneity of solid surfaces, J. M. Honig—1557(L)
Effect of oxygen on luminescence of cadmium sulfide, S. H. Liebson and E. J. West—977(L)
Effect of sorbed water vapor upon the electrical conductivity of conditioned chromium films, Jerrold M. Seehof and Hans J. Trurnit—2459(L)
Effects of oxygen on PbS films, Henry T. Minden—1948
Electron theory of metals and hydrogen overvoltage, Paul Rüetschi and Paul Delahay—1167(L)
Energy exchange between cold gas molecules and a hot graphite surface, Robert Gomer and Lothar Meyer—1370(L)
Gas adsorption on heterogeneous surfaces, Loren G. Hepler—2110
Heat of chemisorption of hydrogen in metals, D. P. Stevenson—203(L)
Heats of adsorption of metal surfaces, M. Boudart—753(L)
Heats of adsorption on a prepared uniform surface, W. A. Steele and J. G. Aston—1547(L)
Heterogeneous exchange between chemisorbed halogen and methyl halide, R. Coekelbergs, A. Frennet, P. A. Gosselain, and M. J. van der Venne—1731(L)
"Hump" in the capacity of the electrical double layer, David C. Grahame—1725(L)
Infrared spectrum of ammonia adsorbed on porous silica glass, D. J. C. Yates, N. Sheppard, and C. L. Angell—1980(L)
Infrared study of the adsorption on silica gel, Tsuneo Yoshino—1563(L)
Kinetics of the isotope exchange reaction of fluorine with hydrogen fluoride, Richard M. Adams, Richard B. Bernstein, and Joseph J. Katz—1622
Liquid surface tension measurements by analysis of solid-state curvatures; the surface tension of liquid germanium, R. C. Sangster and J. N. Carman, Jr.—1142
Logarithmic rate law in chemisorption and oxidation, P. T. Landsberg—1079
Mobility of hydrogen on tungsten, R. Gomer and R. Wortman—1741(L)
New model for a two-dimensional standard state, H. Leon Harter, Paul R. Rider, and Pierce M. Williamson—1966(L)
Overvoltages at the electrode: method Pb/$PbCl_2$, R. Piontelli and G. Sternheim—1358(L)
Overvoltages in melted electrolytes, R. Piontelli and G. Sternheim—1971(L)
Relation between the surface potential and the interaction energy in the case of some hydrogen films, J. C. P. Mignolet—753(L)
Specific absorption of ions in the electrical double layer, David C. Grahame—1166(L)
State of nitrogen adsorbed on tungsten, Gert Ehrlich—1543(L)
Surface recombination of cadmium sulfide, S. H. Liebson—1732(L)
Surface tension of ether and pentane, T. O. Jeffries, M. Derrick, and B. Musgrave—1730(L)
Thermal accommodation coefficient of helium on a bare tungsten surface, Lloyd B. Thomas and E. B. Schofield—861
Thermodynamic properties of krypton adsorbed on titanium dioxide (rutile), E. L. Pace, Kent S. Dennis, and W. T. Berg—2166
Thermodynamics of sorption by solids under finite strain with particular reference to fibers, Howard J. White, Jr.—1491
Transformation of adsorbed water on solid surfaces and its dielectric losses and conductivities, Shifehiko Kurisaki, Shogo Saito, and Genju Sato—1846
Transmissivity of thin carbon films, R. J. Thorn and G. H. Winslow—1729(L)
Use of interpolation theory in the analysis of gas adsorption isotherms. II. Estimation of certain parameters, J. M. Honig and P. C. Rosenbloom—2179

Thermal Diffusion

Concentration of nitrogen-15 by chemical exchange in a thermal diffusion column, W. Spindel and T. I. Taylor—1318
Forces between unlike molecules and the properties of gaseous mixtures, Edward A. Mason—49
Interrelation of gaseous viscosity, self-diffusion, and isotopic thermal diffusion, Eugene M. Holleran—847
Second approximation to the thermal diffusion factor on the Lennard-Jones 12:6 model, S. C. Saxena and B. N. Srivastava—1571
Theory of thermal diffusion in liquids, E. L. Dougherty, Jr., and H. G. Drickamer—295
Thermal diffusion in polymer solutions, A. H. Emery, Jr., and H. G. Drickamer—2252

Thermodynamic Properties

Adsorption of helium on titanium dioxide, J. G. Aston, S. V. R. Mastrangelo, and R. J. Tykodi—1633
Adsorption studies on clay minerals. V. Montmorillonite-cesium-strontium at several temperatures, George L. Gaines, Jr., and Henry C. Thomas—2322
Barrier height and thermodynamic functions of gaseous HNO_3 and DNO_3, Ann Palm and Martin Kilpatrick—1562(L)

Thermodynamic Properties (continued)
Coincidence of fusion points in the polymorphs of dibenzoylmethane and of its enol-ethers, Y. Urushibara, F. Iimura, and K. Ikeda—1724(L)
Compressibilities of ozone, oxygen, and ozone-oxygen mixtures and the thermodynamic quantities for pure ozone, C. M. Birdsall, A. C. Jenkins, F. S. DiPaolo, J. A. Beattie, and C. M. Apt—441
Compressibility of gases. I. The Burnett method. An improved method of treatment of the data. Extension of the method to gas mixtures, William C. Pfefferle, Jr., John Goff, and John G. Miller—509
Contraction of germanium on melting, R. C. Sangster and J. N. Carman, Jr.—206(L)
Critical constants of *n*-butanol, R. Singh and L. E. Shemilt —1370(L)
Determination of the equilibrium constant of the reaction between BF_3 and BCl_3, T. H. S. Higgins, E. C. Leisegang, C. J. G. Raw, and A. J. Rossouw—1544(L)
Dissociation energies of SrO and MgO molecules, Richard F. Porter, William A. Chupka, and Mark G. Inghram—1347(L)
Entropy, heat capacity, and heats of transition of 1,2,3-trimethylbenzene, R. Dean Taylor, B. H. Johnson, and John E. Kilpatrick—1225
Entropy, heat capacity, and heats of transition of 1,3,5-trimethylbenzene, R. Dean Taylor and John E. Kilpatrick—1232
Equation of state of gases by shock wave measurements. I. Experimental method and the Hugoniot of argon, Russell H. Christian and Frederick L. Yarger—2042
Equation of state of gases by shock wave measurements. II. The dissociation energy of nitrogen, R. H. Christian, R. E. Duff, and F. L. Yarger—2045
Examination of the expression, $T(dP/dT)_v+B=f(v)$, for a number of high purity liquid hydrocarbons, W. G. Cutler, W. Webb, and R. W. Schiessler—2466(L)
Force constants, infrared spectrum, and thermodynamic properties of $TiCl_4$, N. J. Hawkins and D. R. Carpenter —1700
Free energy functions for gaseous atoms from hydrogen (Z=1) to niobium (Z=41), Thomas J. Katz and John L. Margrave—983(L)
Germanium-oxygen system, E. S. Candidus and D. Tuome —588(L)
Heat capacity and entropy of FeF_2 and CoF_2 from 11 to 300°K thermal anomalies associated with antiferromagnetic ordering, Edward Catalano and J. W. Stout—1803
Heat capacity of erbium from 15 to 320°K, R. E. Skochdopole, Maurice Griffel, and F. H. Spedding—2258
Heat capacity of NiF_2 from 12 to 300°K thermodynamic functions of NiF_2. The thermal anomaly associated with the antiferromagnetic ordering, Edward Catalano and J. W. Stout—1284
Heat capacity of zinc fluoride from 11 to 300°K. Thermodynamic functions of zinc fluoride. Entropy and heat capacity associated with the antiferromagnetic ordering of manganous fluoride, ferrous fluoride, cobaltous fluoride and nickelous fluoride, J. W. Stout and Edward Catalano—2013
Heats of absorption on a prepared uniform surface, W. A. Steele and J. G. Aston—1547(L)
Heat of dissociation of N_2, John F. Burns—1347(L)
Heat of evaporation of helium, Johan van Dranen—213(L)
Heat of formation and entropy of titanium tetrachloride from an investigation of the equilibrium: $TiO_2(s)+4HCl(g)=TiCl_4(g)+2H_2O(g)$, Milton Farber and A. J. Darnell—1460
High-speed machine computation of ideal gas thermodynamic functions. II. The diatomic free radicals of the isotopic hydrides of oxygen and sulfur, Lester Haar and A. S. Friedman—869
Infrared spectra of gaseous and solid hydrozoic acid and deutero-hydrazoic acid: the thermodynamic properties of HN_3, David A. Dows and George C. Pimentel—1258
Infrared spectrum of SOF_2, J. Kenneth O'Loane and N. Kent Wilson—1313
Intermolecular potential energy of dipolar gases from heat capacity data, D. R. Douslin and Guy Waddington—2453(L)
Internal pressure of carbon tetrachloride between −7° and 70°, Harm Benninga and Robert L. Scott—1911
Ionization potential of the free HO_2 radical and the $H-O_2$ bond dissociation energy, S. N. Foner and R. L. Hudson—1364(L)
Lattice energies of the alkaline earth imides and the heat of formation of NH^{-2}, Aubrey P. Altshuller—1561(L)
Low-temperature specific heats of vitreous and crystalline silica, M. Dank and S. W. Barber—597(L)
Mass spectrometric study of barium oxide vapor, Mark G. Inghram, William A. Chupka, and Richard F. Porter —2159
Mass spectrometric study of gaseous species in the $Al-Al_2O_3$ system, Richard F. Porter, Paul Schissel, and Mark G. Inghram—339
Mass spectrum of lithium iodide, Lewis Friedman—477
Method of extrapolating equation-of-state data to higher temperatures, Roger A. Strehlow—1562(L)
Molecular structure and vibrational spectra of ethyl cyanide, Norman E. Duncan and George J. Janz—434
Nature of the hydrogen-bond. II. The effect of hydrogen-bonding and other solute-solvent interactions upon the shape and intensity of the infrared OH band of phenol, Hiroshi Tsubomura—2130
New modification of solid nitrogen, C. A. Swenson—1963(L)
Note on the potential of the α-P/dH_2 electrode, Sigmund Schuldiner and James P. Hoare—1551(L)
Order-disorder transitions in the alkali borohydrides, C. C. Stephenson, D. W. Rice, and W. H. Stockmayer—1960(L)
Phase diagram of liquid ozone-oxygen system, Callaway Brown, Abraham W. Berger, and Charles K. Hersh—1340
Pyrolysis of acetone and the heat of formation of acetyl radicals, M. Szwarc and J. Watson Taylor—2310
Radiation induced equillibrium of hydrogen-deuterium mixtures, S. O. Thompson and O. A. Schaeffer—759(L)
Rate of evaporation of graphite, R. J. Thorn and G. H. Winslow—1369(L)
Reduction of alkaline earth oxides by methane, J. C. S. Wagener—204(L)
Shape of the coexistence curve in the perfluoromethylcyclohexane-carbon tetrachloride system, Ram Gopal and O. K. Rice—2428
Single ion free energies and the entropies of aqueous ions, Wendell M. Latimer—90
Specific heat of graphite at very low temperatures, Warren DeSorbo—1970(L)
Specific heat of lamellar crystals, Gordon F. Newell—2431
Spectroscopic studies of rotational isomerism in fluorinated ethanes. II. 1,2-dibromo-1,1,2,2,-tetrafluoroethane, R. E. Kagarise and L. W. Daasch—130
Spectroscopy of gaseous carbonyls: I. Infrared spectra and thermodynamic properties of chromium and molybdenum hexacarbonyls, N. J. Hawkins, H. C. Matraw, W. W. Sabol, and D. N. Carpenter—2422

Statistical mechanics of isotopic systems with small quantum corrections. I. General considerations and the rule of the geometric mean, Jacob Bigeleisen—2264
Substituted methanes. XXI. Calculated and observed wave numbers, and calculated thermodynamic properties, for bromodeuteromethane and bromodideuteromethane, Jerome M. Dowling—700
Substituted methanes. XXII. Infrared spectra of $CHBrF_2$, Ann Palm, Fred L. Voelz, and Arnold G. Meister—726
Substituted methanes. XXIII. Infrared spectral data, rotational constants, normal coordinate treatments and thermodynamic properties for CD_3Br and CH_3Br, Herman B. Weissman, Richard B. Bernstein, Shirley E. Rosser, Arnold G. Meister, and Forrest F. Cleveland—544
Substituted methanes. XXV. Potential constants and calculated thermodynamic properties of dibromofluoromethane, Hiromu Murata, Ann Palm, and Arnold G. Meister—702
Substituted methanes. XXVI. Raman and infrared spectral data, assignments, potential constants, and thermodynamic properties for $CHBrCl_2$ and $CDBrCl_2$, Santiago R. Polo, Ann Palm, Fred L. Voelz, Forrest F. Cleveland, Arnold G. Meister, Richard B. Bernstein, and Robert H. Sherman—833
Surface tension and viscosity of liquids, J. H. Simons and W. H. Wilson—613
System of ozone-oxygen, A. C. Jenkins, F. S. DiPaolo, and C. M. Birdsall—2049
System pyridine-pyrrole and the association of pyrrole, Serge N. Vinogradov and Robert H. Linnell—93
Thermodynamic functions for silane, Aubrey P. Altshuller—761(L)
Thermodynamic properties of ideal gaseous methanol, E. V. Ivash, James C. M. Li, and Kenneth S. Pitzer—1814
Thermodynamic properties of krypton adsorbed on titanium dioxide (rutile), E. L. Pace, Kent S. Dennis, and W. T. Berg—2166
Thermodynamic properties of nitrogen trifluoride from 12°K to its boiling point. The entropy from molecular and spectroscopic data, Louis Pierce and E. L. Pace—551
Thermodynamic properties of the system methane-carbon monoxide at 90.67°K, V. Mathot, L. A. K. Staveley, J. A. Young, and N. G. Parsonage—1551(L)
Ultrasonic dispersion in methyl alcohol vapor, Cavid Ener, A. Busala, and J. C. Hubbard—155
Values of thermodynamic functions to 12 000°K for several substances, W. Fickett and R. D. Cowan—1349(L)
Vapor pressure of HT, Jacob Bigeleisen and Eugene C. Kerr—2442(L)
Vibrational assignment and thermodynamic properties of naphthalene, A. L. McClellan and George C. Pimentel—245
Vibrational spectra and assignment of naphthalene and naphthalene-*d*-8, Ellis R. Lippincott and Edward J. O'Reilly, Jr.—238
Vibrational spectra, force constants, and calculated thermodynamic properties of methyltrifluorosilane, R. L. Collins and J. Rud Nielsen—351
Vibrational spectrum of 1-fluoro-1-chloroethylene, D. E. Mann, N. Acquista, and Earle K. Plyler—2122
Vibrational spectrum of fluorotrichloroethylene, D. E. Mann and Earle K. Plyler—1989
Virial coefficients of benzene-cyclohexane mixtures, and theories of liquid solutions, F. G. Waelbroeck—749(L)

Thermodynamics

Anomalies in the data on coexistent densities in the region of the critical temperature, Sidney W. Benson and Charles S. Copeland—1180(L)
Association and the equation of state, Robert Ginell—2395
Calculation of the correction to be applied to gas isotherms measured in the presence of mercury, W. B. Jepson and J. S. Rowlinson—1599
Calculation of thermodynamic properties of polyelectrolytes, R. A. Marcus—1057
Concerning the temperature coefficient of the emf of reversible galvanic cells operated at variable concentration. II, James C. M. Li—2012
Critical isotherm and the equation of state of liquid-vapor systems, B. Widom and O. K. Rice—1250
Effect of orientational forces on second virial coefficients, Barbara J. Castle, John M. Dawson, and Laurens Jansen—1733(L)
Entropy of mixing of liquid solutions, A. Englert-Chwoles—1168(L)
Entropy requirements of the Hammett relationship, John E. Leffler—2199(L)
Equation of state and the thermal dependence of the elastic coefficients of crystalline argon, John H. Henkel—681
Equation of state of gases by shock wave measurements. I. Experimental method and the Hugoniot of argon, Russell H. Christian and Frederick L. Yarger—2042
Equation of state of gases by shock wave measurements. II. The dissociation energy of nitrogen, R. H. Christian, R. E. Duff, and F. L. Yarger—2045
Exact method for the calculations of coexistent densities from Van der Waals' type equations, Sidney E. Benson and Charles S. Copeland—974(L)
Forces between unlike molecules and the properties of gaseous mixtures, Edward A. Mason—49
Grüneisen's constant for some metals, J. J. Gilvarry—1925
Heat of evaporation of helium, Johan van Dranen—213(L)
High-temperature equation of state by a perturbation method. II. Polar gases, Robert W. Zwanzig—1915
Homogeneity condition in thermodynamics, Henry A. Bent—2199(L)
Intermolecular force field of linear molecules with quadrupole moments, A. D. Buckingham—412(L)
Intermolecular forces and the crystal structures of the rare gases, John Jansen and Laurens M. Dawson—482
Intermolecular potential energy of dipolar gases from heat capacity data, D. R. Douslin and Guy Waddington—2453(L)
Intermolecular potentials of argon, krypton, and xenon, E. Whalley and W. G. Schneider—1644
Mixtures of rigid spherical molecules, Berni J. Alder—263
Molar sound velocity in liquids and the liquid state, Herman I. Leon—983(L)
Molecular formulation of thermodynamic functions encountered in solution theory, Frank P. Buff and Robert Brout—458
Phenomenological relations of electro-osmosis in paper electrochromatography, Scott E. Wood—1881
Properties of substances at the critical point, Johan van Dranen—218(L)
Relation between isotherms and coexistence curve in the critical region, O. K. Rice—169
Second virial coefficient for ellipsoids with imbedded dipoles, Charles Muckenfuss, C. F. Curtiss, and R. B Bird—1542(L)
Shape of the coexistence curve near the critical temperature, O. K. Rice—164
Shape of the consolute curve and its consequences for the theory of binary liquid mixtures of nonelectrolytes, F. Kohler—1398
Specific heat of lamellar crystals, Gordon F. Newell—2431
Spherical interface. II. Molecular theory, Frank P. Buff—419

Thermodynamics (continued)
Statistical mechanics of polymer solutions. Parts I and II, Michio Kurata, Mikio Tanura, and Tatsuro Watari—991
Structure of the configuration integral in the statistical mechanics of pure fluids, B. Widom—560
Surface tension temperature relation, Shashanka Shekhar Mitra and Nitish Kumar Sanyal—1737(L)
Temperature dependence of viscosity and its relation to vapor pressure for associated liquids, L. A. Girifalco—2446(L)
Thermodynamics of a fluid substance in the electrostatic field, Henry S. Frank—2023
Thermodynamics of sorption by solids under finite strain with particular reference to fibers, Howard J. White, Jr.—1491
Use of the lattice model for entropy calculations, F. Bueche and W. R. Krigbaum—1863
Variation of surface tension and heat of vaporization with temperature, S. T. Bowden—2454(L)

Thermoluminescence
Experimental study of the mechanism of thermoluminescence in irradiated sodium chloride, J. J. Hill and P. Schwed—652
Thermoluminescence and fluorescence in alkali halide crystals induced by soft x-ray, Seymour P. Keller and Jack J. Clemmons—586(L)
Thermoluminescence induced by pressure and by crystallization, Edward J. Zeller, John L. Wray, and Farrington Daniels—2187(L)
Thermoluminescence measurements on ZnS phosphors in vacuo, G. Neumark, J. Fajans, and D. R. Franki—1553(L)
Thermoluminescence of zinc sulfide phosphors doubly activated with copper and manganese, Shigeo Shionoya—1976(L)

Transport Phenomena
Dissociation by impacts of the second kind, W. E. Groth and O. Oldenberg—729
Energy exchange between cold gas molecules and a hot graphite surface, Robert Gomer and Lothar Meyer—1370(L)
Energy excitation of vibrations in halo-methane gases, Robert Amme and Sam Legvold—1960(L)
Energy transfer by collisions in vapors of chlorinated methanes, D. Sette, A. Busala, and J. C. Hubbard—787
Exp: Six potential and properties of gases, M. P. Madan—763(L)
Forces between unlike molecules and the properties of gaseous mixtures, Edward A. Mason—49
Stabilization of energy-rich molecules. I. Energy transfer with hydrogen, M. Boudart and J. T. Dubois—223
Thermal conductivities of organic vapor mixtures, L. A. Bennett and R. G. Vines—1587

Ultrasonics
Collision excitation of molecular vibrations in halogen-substituted methanes, Thomas D. Rossing and Sam Legvold—1118
Determination of the velocity of sound in hydrazine-water mixtures by means of the Debye-Sears ultrasonic light diffraction phenomenon, George G. Kretschmar—2102
Dispersion and absorption of sound in imperfect gases in general chemical equilibrium and its application to chemical kinetics, Daisaku Tabuchi—2033
Energy transfer by collisions in vapors of chlorinated methanes, D. Sette, A. Busala, and J. C. Hubbard—787
Luminescence produced as a result of intense ultrasonic waves, Virginia Griffing and Daniele Sette—503
Radio-frequency vibrational absorption in piezoelectric crystals, Jules Duchesne and Andre Monfils—762(L)
Ultrasonic absorption in sugar solutions, G. S. Verma—876
Ultrasonic dispersion in methyl alcohol vapor, Cavid Ener, A. Busala, and J. C. Hubbard—115
Ultrasonic investigation of a chemical kinetics problem: The dissociation of magnesium sulfate, David Alan Bies—428

Valence and Chemical Bond
Absence of hydrogen bonding in an alcohol-fluorohydrocarbon system, R. S. McDonald, J. H. Gibbs, and J. R. Ladd—1170(L)
Alternative method for calculating SCF orbitals, H. Brion, R. Lefebvre, and C. M. Moser—1972(L)
Anomalous electron scattering from iodine vapor, I. L. Karle—1739(L)
Atom-stabilization energies in conjugated systems, Takeshi Nakajima—587(L)
Band widths in the spectra of manganous and other transition-metal complexes, L. E. Orgel—1824
Bond energies in organic fluorine compounds, Norbert W. Luft—973(L)
Bonding in the zinc family metals, W. E. Wallace—2281
Calculation of electrostatic binding energies in systems of isotropic ions, Chester T. O'Konski—1174(L)
Chemical shifts of nitrogen, B. E. Holder and M. P. Klein—1956(L)
Cl^{35} pure quadrupole resonances in acid chlorides and chlorates, P. J. Bray—703
Complete π-electron treatment of allyl radical and allyl ion, H. C. Lefkovits, Janice Fain, and F. A. Matsen—1690
Concerning hydrogen positions in aquo complexes—$CuCl_2 \cdot 2H_2O$, R. E. Rundle, Kazuo Nakamoto, and James W. Richardson—2450(L)
Configuration interaction applied to the hydrogen molecule, Earl Callen—360
Crystal structure and quadrupole coupling of cyanogen bromide, BrCN, S. Geller and A. L. Schawlow—779
Delocalization and approximation methods, C. R. Mueller—1726(L)
Derivation of an internuclear function from a quantum-mechanical model, Ellis R. Lippincott—603(L)
Dielectric properties of liquid butyl alcohols, Walter Dannhauser and Robert H. Cole—1762
Dielectric properties of liquid ethanol and 2-propanol, F. X. Hassion and R. H. Cole—1756
Dielectric properties of methanol and methanol-1-propanol solutions, Donald J. Denney and Robert H. Cole—1767
Dissociation energies of SrO and MgO molecules, Richard F. Porter, William A. Chupka, and Mark G. Inghram—1347(L)
Divalent hydrogen in the FHF^- ion, R. T. Sanderson—217(L)
Effect of isotopic substitution on the mass spectra of molecules. III. Carbon dioxide, theoretical interpretation, Oliver A. Schaeffer—1309
Effect of isotopic substitution on the mass spectra of molecules. II. Oxygen and carbon dioxide, experimental, Oliver A. Schaeffer and Henry R. Owen—1305
Electron exchange coupling of nuclei in aromatic systems, H. S. Gutowsky, L. H. Meyer, and D. W. McCall—982(L)
Electronic population analysis on LCAO-MO molecular wave functions, I. R. S. Mulliken—1833
Electronic population analysis on LCAO-MO molecular wave functions. II. Overlap populations, bond orders, and covalent bond energies, R. S. Mulliken—1841

Electronic population analysis of LCAO-MO molecular wave functions. III. Effects of hybridization on overlap and gross AO populations, R. S. Mulliken—2338
Electronic population analysis on LCAO-MO molecular wave functions. IV. Bonding and antibonding in LCAO and valence-bond theories, R. S. Mulliken—2343
Electronic structures of transition-metal complexes, L. E. Orgel—1819
Energy calculations for the linear H_3^+ ion system, Roland S. Barker, J. Calvin Giddings, and Henry Eyring—344
Energy calculations of multiple hydrogen-atom systems by VB and MO methods, Roland S. Barker, Richard L. Snow, and Henry Eyring—1686
Free electron theory, finite differences, and LCAO molecular orbitals, Arthur A. Frost—310
Free-electron treatment of Diels-Alder's reaction, Sadham Basu—1548(L)
General relation between potential energy and internuclear distance for diatomic and polyatomic molecules. I. Ellis R. Lippincott and Rudolph Schroeder—1131
Ground state of the helium hydride ion, Arthur A. Evett —1169(L)
Heat of dissociation of N_2, John F. Burns—1347(L)
Hybrid π orbitals and partial double bond character in covalent complexes, Giovanni Giacometti—2068
Infrared intensity of the C-D stretch of chloroform-*d* in various solvents, Charles M. Huggins and George C. Pimentel—896
Infrared spectra and structure of the crystalline sodium acetate complexes of U(VI), Np(VI), Pu(VI), and Am(VI). A comparison of metal-oxygen bond distance and bond force constant in this series, Llewellyn H. Jones—2105
Infrared spectra of gaseous and solid hydrozoic acid and deutero-hydrazoic acid: the thermodynamic properties of HN_3, David A. Dows and George C. Pimentel—1258
Infrared spectrum and molecular structure of succinonitrile, George J. Jenz and William E. Fitzgerald—1973(L)
Infrared spectrum of ammonia adsorbed on porous silica glass, D. J. C. Yates, N. Sheppard, and C. L. Angell —1980(L)
Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947
Intramolecular O—H—O hydrogen bonds in bis-(dimethylglyoximato)-cobalt (III)-complexes, Junnosuke Fujita, Akitsuga Nakahara, and Ryutaro Tsuchida—1541(L)
Ionic character of diatomic molecules, B. P. Dailey and C. H. Townes—118
Ionization and dissociation processes in the vapors of lithium chloride, sodium chloride, and potassium chloride, Robert M. Hobson—2463(L)
Kinetics of coordinate bond formation. II, G. B. Kistiakowsky and R. Williams, 334
Localizability of electrons in atoms and molecules—application to the study of the notion of shell and of the nature of chemical bonds, Raymond Daudel, Hélène Brion, and Simone Odiot—2080
London force contributions to bond energies, Kenneth S. Pitzer—1735(L)
Measurement of bond moments in C_2H_2 and C_2D from infrared intensities, Edward C. Wingfield and Joseph W. Straley—731
Measurement of the magnetic susceptibility of manganese nitride Mn_6N_2 by a microvibration method, Y. L. Yousef, R. K. Girgis, and H. Mikhail—959
Methyl alcohol. II. Molecular structure, Putcha Venkateswarlu and Walter Gordy—1200
Microwave spectrum of cyclopropyl chloride, James P. Friend, Robert F. Schneider, and B. P. Dailey—1557(L)
Microwave spectrum of ethyl bromide, R. S. Wagner, N. Solimene, and B. P. Dailey—599(L)
Modified bond-eigenfunction method of calculating potential energy surfaces and its application to the reaction $H+H_2 \rightarrow H_2+H$, Iwao Yasumori—1566(L)
Modified valence-bond treatment of unsaturated and aromatic compounds, G. W. Wheland—79
Molecular calculations. I. An LCAO MO self-contained field treatment of the ground state of H_2O, Frank O. Ellison and Harrison Shull—2348
Molecular calculations. II. Methods of approximation of molecular integrals, Frank O. Ellison—2358
Molecular orbitals for the hydrogen molecule ground state, Richard F. Wallis—1256
Molecular structure of diborane tetrachloride, B_2Cl_4, Masao Atoji, William N. Lipscomb, and P. J. Wheatley —1176(L)
Nature of the hydrogen-bond. II. The effect of hydrogen-bonding and other solute-solvent interactions upon the shape and intensity of the infrared OH band of phenol, Hiroshi Tsubomura—2130
New method of drawing the potential energy surface, Shin Sato—592(L)
Note on the branching condition in the one-dimensional free electron gas model, Arthur A. Frost—985(L)
Note on the dodecahedral σ hybrids, Giovanni Giacometti —977(L)
Note on the dodecahedral σ hybrids, Bryan Higman— 977(L)
Nuclear magnetic resonance: structure of the amino group I, R. A. Kromhout and W. G. Moulton—1673
Nuclear quadrupole resonances in solid iodine compounds, S. Kojima, K. Tsukada, S. Ogawa, and A. Shimauchi— 1963(L)
Nuclear quadrupole resonances of Sb^{121} and Sb^{123}, R. G. Barnes and P. J. Bray—1177(L)
Nuclear spin-spin coupling in substituted benzenes, Edward B. Baker—984(L)
Observation of chemical shifts of O^{17} nuclei in various chemical environments, H. E. Weaver, B. M. Tolbert, and R. C. La Force—1956(L)
One-dimensional model of the hydrogen bond, Ellis R. Lippincott and Rudolph Schroeder—1099
Overlaps of trial functions for the hydrogen molecules. II. Covalent and ionic character of H_2, Jerry Braunstein and William T. Simpson—176
Overlaps of trial functions for the hydrogen molecules. I. Ground-state character of the 1*s* AO approximations, Jerry Braunstein and William T. Simpson—174
Properties of the hydrogen bond. The role of lone pair electrons, W. G. Schneider—26
Proton chemical shift in ammonia, B. N. Bhar—1972(L)
Proton magnetic resonance studies of chloroform in solution: evidence for hydrogen bonding, Charles M. Huggins, George C. Pimentel, and James N. Shoolery—1244
Pyramidal $XY(CH_3)_2$ molecular model classical vibration problem, Harold C. Beachell, Bernard Katlafsky, and James L. Lauer—2171
Raman spectrum of sulfur dichloride, H. Stammreich, Roberto Forneris, and Kozo Sone—972(L)
Relation of stability ratios to Pauling electronegativities, R. T. Sanderson—2467(L)
Resistance in a liquid-liquid interface. III. The effect of molecular properties, J. H. Sinfelt and H. G. Drickamer —1095
Stereochemical consequences of intramolecular attractive forces, G. J. Szasz—2449(L)
Structure and calculation of the binding energy of gaseous alkali halide dimers, Chester T. O'Konski and William I. Higuchi—1175(L)

Valence and Chemical Bond (continued)
Structure of ethylene, Alexander Verrijn Stuart—1726(L)
Structure of ferrocene, E. A. Seibold and L. E. Sutton—1967(L)
Structure of hexamethyldisilane, Hiromu Murata and Kazuhiro Shimizu—1968(L)
Theorems concerning the mutual polarizabilities of atoms and bonds in conjugated molecules, H. H. Jaffe—1
Theoretical evaluation of atomic polarizations of diatomic molecules, A. P. Altshuller—256
Theoretical study of the ozone molecule, Inga Fischer-Hjalmars—411(L)
Third-order conjugation energies, Y. I'Haya—1171(L)

Viscosity
Application of the kinetic theory of liquids of Born and Green to the problem of the calculation of the volume viscosity, R. E. Nettleton—1560(L)
Exp: Six potential and properties of gases, M. P. Madan—763(L)
Interrelation of gaseous viscosity, self-diffusion, and isotopic thermal diffusion, Eugene M. Holleran—847
Intrinsic viscosity of flexible macromolecules: corrected tables, John G. Kirkwood, Robert W. Zwanzig, and Richard J. Plock—213(L)
Intrinsic viscosity of polymethylmethacrylate, Anton Peterlin—750(L)
Non-Newtonian viscosity of solutions of ellipsoidal particles, Harold A. Scheraga—1526
Self-diffusion coefficient and viscosity in liquids, James C. M. Li and Pin Chang—518
Surface tension and viscosity of liquids, J. H. Simons and W. H. Wilson—613
Viscosity anomaly of supercooled liquids, Gerald W. Sears—604(L)

X-Ray Diffraction
Crystal structure and quadrupole coupling of cyanogen bromide, BrCN, S. Geller and A. L. Schawlow—779
Crystal structure of aluminum nitride, G. A. Jeffrey and G. S. Parry—406(L)
Crystallographic formalism IB: reply to Nowacki's letter "the number of x-ray diffraction groups," C. D. West—1172(L)
Dimorphism of *para*-dichlorobenzene, G. A. Jeffrey and W. J. McVeagh—1165(L)
Infrared spectrum, x-ray diffraction pattern, and structure of ammonium fluoride, Robert C. Plumb and Donald F. Hornig—947
Liquid metals. II. X-ray diffraction by liquid mercury and the distance of closest atomic approach, Joseph S. Lukesh, William H. Howland, Leo F. Epstein, Marion D. Powers—1923
Mean amplitudes of thermal vibrations in polyatomic molecules. III. The generalized mean amplitudes, Yonezo Morino and Eizi Hirota—737
Molecular structure of diborane tetrachloride, B_2Cl_4, Masao Atoji, William N. Lipscomb, and P. J. Wheatley—1176(L)
Number of x-ray diffraction groups, Werner Nowacki—1172(L)
Study of phase-transformation of orthoboric acid by x-ray diffraction method, D. R. Dasgupta and B. K. Banerjee—2190(L)
Vector distributions and crystalline proteins, Dorothy Wrinch—1361(L)
X-ray crystallographic study of phase-transformation of borax during thermal treatments, D. R. Dasgupta and B. K. Banerjee—2189(L)
X-ray diffraction patterns of $TiCl_2$ and $TiCl_3$, Milton Farber, A. J. Darnell, and Frank Brown—1556(L)
X-ray diffraction study of four reinforcing carbon blacks, Leroy Alexander and Stephen R. Darin—594(L)